THE INFLUENCE OF PRODUCT APPEARANCE ON PERCEIVED PRODUCT QUALITY IN REFERENCE TO WASHING MACHINES

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Approval of the thesis:

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ABSTRACT

THE INFLUENCE OF PRODUCT APPEARANCE ON PERCEIVED PRODUCT QUALITY IN REFERENCE TO WASHING MACHINES

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Product quality is regarded as one of the most important factors that consumers consider while purchasing products. However, contrary to objective quality, perceived product quality includes consumer's judgment about the overall superiority or excellence of a product.

This study mainly concentrates on the relationship between product appearance and perceived product quality especially for durable goods. The definitions of product quality and perceived product quality are reviewed to explain different dimensions of perceived product quality. Product appearance and the importance of product appearance are explained to reveal the relationship between the consumer and the appearance of the product. Four types of information communicated through the appearance are revealed: *aesthetic information*, *symbolic information*, *functional information* and *ergonomic information*.

In the field study, how these four types of information communicated by the product appearance influence the consumers' quality perception is questioned through a quantitative study. Conducted with 100 participants, the results of the questionnaire shows that the appearance influences quality perception in various stages of consumer/product context for durable goods. At the end of the study, it is observed that aesthetic, functional and ergonomic information directly influence consumer's quality perception; wheras, the influence of symbolic information on the perceived quality is found to be limited and indirect.

Keywords: product quality, perceived quality, product appearance, durable goods, product design.

ÖZ

ÇAMAŞIR MAKİNESİNDE ÜRÜN GÖRÜNÜŞÜNÜN ÜRÜN KALİTE ALGISI ÜZERİNDEKİ ETKİSİ

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Ürün kalitesi, tüketicilerin bir ürün satın alırken göz önüne aldığı en önemli faktörlerden biri haline gelmiştir. Fakat, ölçülebilir kalitenin aksine, ürün kalite algısı, tüketicilerin ürünün mükemmelliği veya üstünlüğü hakkındaki yargılarını içerir.

Bu çalışmada, ürün görünüşü ile ürün kalite algısı arasındaki ilişki, özellikle tüketici ürünlerinde ele alınmıştır. Ürün kalitesi ve algılanan ürün kalitesi kavramları gözden geçirilmiş ve algılanan ürün kalitesi farklı boyutlarıyla açıklanmıştır. Ürün görünüşü ve ürün görünüşünün önemi, tüketici ile ürün arasındaki ilişkinin tanımlanması amacıyla irdelenmiştir. Ürün görünüşünün tüketiciye dört çeşit bilgi ilettiği ortaya koyulmaktadır: *estetik bilgi*, *sembolik bilgi*, *işlevsel bilgi* ve *ergonomik bilgi*.

Alan çalışmasında, ürünün görünüşü tarafından tüketiciye iletilen bu dört çeşit bilginin, tüketicinin kalite algısını nasıl etkilediği, niceliksel bir çalışma ile araştırılmıştır. 100 katılımcı ile gerçekleştirilen çalışmanın sonuçları, dayanıklı tüketim ürünlerinde ürün kullanıcı ilişkisinin çeşitli aşamalarında, ürün görünüşünün kalite algısını etkilediğini göstermektedir. Çalışma sonunda estetik, işlevsel ve ergonomik bilginin, tüketicinin kalite algısını doğrudan etkilediği; öte yandan sembolik bilginin kalite algısı üzerindeki etkisinin kısıtlı ve dolaylı olduğu gözlemlenmiştir.

Anahtar kelimeler: ürün kalitesi, algılanan ürün kalitesi, ürün görünüşü, dayanıklı tüketim ürünleri, ürün tasarımı.

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CHAPTER 1

INTRODUCTION

1.1 Problem Definition

Product quality is regarded as one of the most important factors for which many different approaches such as six sigma, total quality management (TQM) etc. have been developed for decades. Each profession developed its own perspective to define product quality, varying from the transcendent approach of philosophy to manufacturing-based quality of engineering and user based perspectives of marketing (Garvin 1984a). The contributions of these different approaches and perspectives to the literature should be acknowledged beyond question. However, there is another aspect of quality as important as the above mentioned perspectives. This aspect is the subjective evaluations of the consumers. No matter how the product is the result of a cutting-edge technology, or how long the life period of the product can be, it would not give any credit to the product, the company, the brand and the design, unless the consumer notices the superiority or excellence of the product among the others. In other words, actual or objective quality is an important issue to some extent, but in a user/product context, it is the consumer's evaluation, judgment or feelings towards the product. The importance of the consumers' judgments about the product quality gained increasing notice in the literature during the last two decades and many studies related to the relationship between the product quality and different product attributes such as brand name, brand image, price, perceived value, appearance, country of origin, etc. conducted by various researchers. Each of these studies has contributed enormous insights to the domain of quality.

Design is an important tool to communicate messages and information to the consumers by using the semantic power of sign/signifier/signified triology (Crilly *et al.* 2004). A product could be regarded as a successful one in the market, provided that it successfully communicates its intended use, functions, meanings and aesthetic values to its target users. The appearance of a product is the first signal that is communicated to the consumers.

These signals are perceived by the senses, which is the initial step of the cognitive and emotional responses. These responses are transformed into consumers' evaluations, judgments and feelings about the product and result with either approaching to or avoiding from the product.

Not only reguiring subjective evaluations and judgments, but also including consumers to their processes, both topics are important aspects of the domains related to product and product design and there should be a relationship in between. Both consumers' evaluation of product appearance and perception of quality are supposed to require cognitive and emotional responses with different levels of abstraction. The desire to demystify this relationship constitutes the motivation of the study.

The author of this thesis is currently working in a company producing household appliances namely Arçelik A.Ş.. Thus, the author had the possibility to integrate his experience, expertise and insights into this study and consulted his colleagues from the company during different stages of this study.

1.2 Aim of the Study

In this study, it is aimed to clarify the relationship between the product appearance and perceived product quality through the context of the consumer products. The literature about either product quality or product appearance is unlimited, and prevails different dimensions of these two subjects. However, to our knowledge, there is no comprehensive work in the literature analyzing the influence of product appearance on the consumers' quality perception. This study aims to fill this gap in the literature by offering a dedicated study of the impact of a single item, product appearance, on perceived quality.

Thus, the main research question of this study is:

- How does product appearance influence consumers' quality perception for consumer goods?

The study also aims to find answers for following sub-questions:

- Which aspects of product appearance are effective in creating the judgments of quality?
- What is the role of each aspect of product appearance (i.e. aesthetic information, symbolic information, functional information and ergonomic information) on consumers' perception of quality?

To be able to answer the main research question, some additional questions should be addressed to the literature in order to clarify and identify the terms. It is vital for the study to recognize the approaches of product quality and cognitive science where the terms, perceived quality and perception, has been defined and worked on. Therefore, sub-questions are:

- What are the approaches to product quality?
- How does the perceived product quality differ from the actual or objective product quality?
- How do consumers search and experience quality?
- What are the quality cues derived from the products?
- What is the importance of appearance for the consumer?
- What are the meanings conveyed through the products?
- What are the differences between cognitive, emotional and behavioral responses?
- What are the moderating issues which influence the decision-making process of the consumers?

1.3 Structure of the Study

This study is basically composed of two parts; the theoretical study and the field study. The theoretical study is aimed to establish a framework upon the field study. This study contains 5 chapters in total. In the following two chapters, the dimensions of product quality and product appearance in the literature were explained in details.

In Chapter 2, a brief description of different approaches of product quality was explained and then the concept of perceived product quality, which is the consumers' evaluations and judgments of overall excellence or superiority of the product, was focused. After identifying the definitions and advantages, the assets of perceived quality were investigated. Then product attributes were explained and the relationship between the types of product attributes and perceived quality was developed. The chapter was finalised by revealing the cues that consumers regard during the evaluation of the products.

In Chapter 3, product appearance was examined. The importance of the product appearance in particular and product design in general were highlighted and the different types of information communicated through the appearance were identified. Then the cognitive, emotional and behavioral responses of the consumers were explained. The chapter was

finalised by explaining the moderating issues which influence consumers' evaluations of the products.

In Chapter 4, a field study, which aims to answer to the purpose of this study and the main research questions, was conducted. Washing machine was chosen as the product samples in this study. Three washing machines were selected, and a quantitative questionnaire aiming to investigate the relationship between product appearance and perceived product quality was performed with 100 participants.

In Chapter 5, the conclusions of the study were revealed. After an overview of the previous chapters, the results of the field study were discussed together with the reviewed literature related to perceived product quality and product appearance.

CHAPTER 2

PRODUCT QUALITY

2.1 Different Approaches to Product Quality

The concept of product quality has received attention in various disciplines. According to Garvin, many scholars from four different disciplines defined quality from different point of views. "Philosophy has focused on definitional issues; economics, on profit maximization and market equilibrium; marketing, on the determinants of buying behavior and customer satisfaction; and operations management, on engineering practices and manufacturing control" (Garvin 1984b, 25).

In order to understand the various quality perspectives, major approaches to product quality will be discussed in the following sections:

- Transcendent (or Judgmental) approach,
- Product-based approach,
- Manufacturing-based approach,
- Value-based approach,
- User-based approach,
- Quality characteristics

Transcendent (or Judgmental) Approach

According to transcendent view, quality is synonymous with "innate excellence" (Tuchman 1980). Excellence or "arête" in Greek was defined by many philosophers like Plato, Socrates, and Aristotle. For Plato, *arête* was the absolute form, the utmost point and the highest idea. This approach concentrates on the being of quality. It is regarded as an indefinable and immeasurable property that an individual can learn to recognize only through experience (Garvin 1984b; Steenkamp 1989).

Smith (1993) proposes the following definition:

> Quality is the goodness or excellence of some thing. It is assessed against accepted standards of merit for such things and against the interests/needs of users and other stakeholders (Smith 1993, 237)

Garvin (1984a) indicates that "though styles and tastes change, there is something enduring about works of quality" (Garvin 1984a, 41), which refers to the goodness or excellence. However quality is a relational attribute, which cannot be measured directly but assessed individually by considering the attributes. The difference in quality occurs, because the experience, taste and style of people vary (Smith 1993).

Product-based Approach

Product-based approach views quality as "a precise and measurable variable. According to this view, differences in quality reflect differences in the quantity of some ingredient or attribute possessed by a product" (Garvin 1984b, 25-26; Abbott 1955). A high quality dishwasher is the one which the best materials are used and lots of features are added. Quality differences can, therefore, be treated as differences in quantity.

There are two results of this approach: First, because the amount of attributes that a product contains indicates its quality, and these attributes are considered to be costly to produce, higher-quality goods will be obtained at higher costs and thus will be more expensive, which, in turn, results with a mistaken assumption that "the higher the price of a product, the higher the quality" (Evans and Lindsay 2004; Juran 1974). However, any product, even with the highest amount of product attributes or characteristics, does not have to be expensive to be regarded as a quality product by customers.

Second, as the quality is regarded as the quantity of the attributes possessed by a product, it is "an inherent characteristic of goods, rather than something ascribed to them. Because quality reflects the presence or absence of measurable product attributes, it can be assessed objectively" (Garvin 1984b, 26). But as in the transcendence approach, the evaluation of the product attributes may differ among consumers. Therefore, this approach lacks in explaining whether the presence, absence and amount of product attributes or consumers' evaluation of the product attributes declares the quality of the product.

Manufacturing-based Approach

In manufacturing-based approach, "better quality" is equated with "conformance to specifications" and "doing it right for the first time" (Crosby 1979). The term "specifications" refers to the targets and tolerances determined by designers and engineers. Any deviation from the specifications is regarded as poorly manufactured. According to Garvin (1984b), in this approach, "quality is defined in a manner that simplifies engineering and production control. On the design side, this has led to an emphasis on reliability engineering; and on the manufacturing side, to an emphasis on statistical control" (Garvin 1984b, 28). Steenkamp (1989) states that "this approach concentrates on producing a product with a predetermined quality level. This level of quality is achieved by quality of design, quality of production, continuity of service, and customer service after sale" (Steenkamp 1989). Garvin (1984a) emphasizes that "the critical issue is whether the final product conforms to the design and [performance] standards that have been set for it, and not the content or validity of those standards" (Garvin 1984a, 41).

According to Smith (1993),

> Critics of the approach question the adequacy of product specifications as quality standards. This criticism may be valid, depending on how the specifications were developed. Generally, it can be assumed that specifications define a product that will perform its intended function (e.g. the refrigerator will keep food cold). Design research demonstrates that there usually are many designs that will perform a given function (Smith 1993, 238).

For example, manufacturing-based approach suggests that "a well-made Mercedes is a high-quality automobile, as is a well-made Corvette." (Garvin, 1984b). However this is not entirely true. Assuming both vehicles conform to their production specifications, the Mercedes' specifications may respond more adequately to most of the user needs for a car than do those of the Chevette. Consequently, the Mercedes may still be a higher quality car than Chevette, or in some cases vice versa (see Figure 2.1)

Since this approach is too much focused on the consistency in production, it lacks other factors such as user need and expectations.

Figure 2.1 Mercedes Benz CLK Class and Chevrolet Chevette Scooter

Value-based Approach

Value-based approach defines quality within price/cost relationship. According to Garvin (1984), in value-based approach, a good-quality product provides performance at an acceptable price or conformance to requirements at an acceptable cost. A value-based quality product is the one which is as useful as the other competing products in the market but sold with a lower price, or the one which offers some degree of greater usability and satisfaction at a comparable price. To explain the importance of creating value via quality, Evans and Lindsay (2004) annotate the quote of a Chrysler marketing executive: "One of the main reasons that the leading Japanese brands – Toyota and Honda – don't offer the huge incentives of the Big Three (General Motors, Ford and Chrysler) is that they have a much better reputation for long-term durability." Here, incentives that the biggest US automotive companies offer are the payment to stimulate consumers' buying decision in compensation for their lower quality.

Using value-based approach to gain competitive advantage in the market became one of the "2010 Key Marketing Strategies" of Beko. Beko executives declared their market approach in their company presentation as "value for money" which indicates that the consumers should demand and buy Beko home appliances with higher quality within the same price range with the competing brands or the same quality with more affordable prices (Beko 2009).

User-based Approach

User-based approach starts with a theory that each consumer has different needs and expectations. If a product is designed and manufactured to satisfy these needs, it can be regarded as good-quality (Garvin 1984a).

Juran (1974) first uses the definition of "fitness for use" to define this approach. In the fifth edition of Juran's handbook published in 1988, Juran retained "fitness for use" definition of

quality and criticized multiple meanings that had come to be associated with quality. According to Juran, although quality was defined by many researchers as conformance to a standard, for a company, the definition should include the notion "freedom from deficiencies" as well. Moreover, the definition of the customer should be expanded to the extent that "both internal customers—those inside the organization— and external customers—those outside the organization — should be covered", as well (Juran 1988).

According to Smith (1993), "the major problem with this approach to quality is that of operationalization. it is often difficult to determine user needs for a product, in part because the needs may not exist until after the product is introduced. It is also difficult to translate user needs into specific product attributes [to be able to address to quality assessments]" (Smith 1983, 238)

Garvin (1984b) claims that since each customer would have different needs and expectations towards a product, these needs and expectations cannot be satisfied with offering a single design which is suitable for all potential customers. He also argues that quality should not be defined by maximum customer satisfaction, given that a customer "may enjoy a particular brand because of its unusual taste or features, yet may still regard some other brand as being of higher quality" (Garvin 1984b, 27).

Each approach mentioned above helps to explain different views adopted by different departments in a company. Garvin (1984b) states that "marketing people typically take a user-based or product-based approach to the subject; for them, higher quality means better performance, enhanced features, and other improvements that increase cost" (Garvin 1984b, 28), but increase costumer satisfaction, as well. On the other hand, according to manufacturing people quality means conformance to specifications and they emphasize on "doing the manufacturing process right the first time". This view aims to not only eliminate high levels of rework and scrap but also result in cost reduction (Garvin 1984b).

Figure 2.2 shows the relationship between above mentioned quality approaches and the marketing, design, manufacturing and distribution units of a company (Evans and Lindsay 2004).

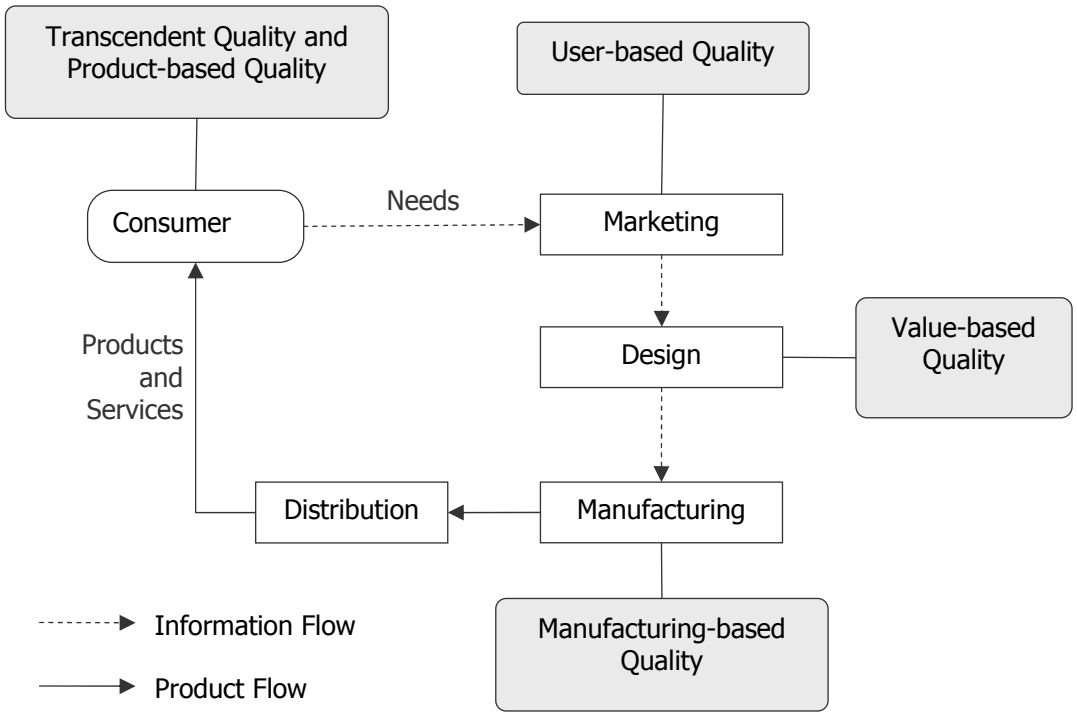

Figure 2.2 Quality Perspectives in an Organization (Source: Evans and Lindsay 2004)

Quality Characteristics

The final approach to quality is not actually a definition, but rather it is an attempt to operationalize user needs. The approach reveals the relationship between user needs and product specifications by proposing a group of quality attributes, named as "quality characteristics" by Ishikawa (1990) and "dimensions of quality" by Garvin (1984a, 1984b, 1984c).

Garvin (1984a, 1984b, 1984c) identified eight dimensions of quality as a framework for conceptualizing user needs. He classified quality into eight dimensions;

- Performance,
- Features,
- Reliability,
- Conformance,
- Durability,
- Serviceability,
- Aesthetics,
- Perceived Quality.

According to Garvin, successful introduction of high-quality products to the market is obtained by shifting an approach to quality to another one, as the product develops from design to market. First, through market research and user analysis, it should be identified which of these quality characteristics listed above is to be focused on and indicated as major quality issues (a user-based approach to quality); second, these characteristics must be translated into certain product attributes (a product based approach to quality); and finally, the manufacturing process must be organized to ensure that products conform precisely to the specifications (a manufacturing-based approach to quality) (Garvin 1984a; 1984b; 1984c).

Smith (1993) argues that "A product's quality characteristics reflect the product's type. Thus, reliability is a quality characteristic of durables (televisions) but not of consumables (apples)" (Smith 1993, 239). Each of the dimensions (or characteristics) is independent and distinct. A product can reflect high quality on one characteristic, while being low on another.

Garvin (1984c) claims that companies should decide on which quality dimensions they should apply for their manufacturing and marketing strategies regarding their user needs, expectations and product specifications For example, Japanese automotive companies have succeeded in the USA by offering distinctive performance and emphasizing their reliability and conformance to manufacturing specifications, whereas in the market, most of US companies were interested in aesthetics and features (Garvin 1984c).

2.2 Significance of Consumer in Quality

Development of user-based and value-based approaches emphasized the importance of the consumers evaluating the quality of the products. Since assessment of quality changes from customer to customer, quality is not a static, but a dynamic, concept, from product to product and through time. As Stone-Romerio *et al.* (1997) indicates;

> "Actual changes and improvements in product quality through changes and improvements in manufacturing process and marketing strategies would have little or no impact on the buying behavior of consumers unless they perceive that the quality of products meets or exceeds a given criteria" (Stone-Romerio *et al.* 1997, 88).

In other words, any changes or improvements in manufacturing process and marketing strategies for also changing and improving product quality should aim to meet the consumers' needs and expectations in order to influence their perceptions and evaluation of product quality, which, then, may affect their buying behavior.

According to Stone-Romerio *et al.* (1997), to be able to understand how the consumer evaluates the product and behaves accordingly, it is important that quality measures focus on the perceptions of the consumers of the product (i.e., perceived product quality) rather than,

a. claims about product quality that are offered by the manufacturers and suppliers of various products or,
b. measures of product quality that are objective in nature (e.g., degree of conformity with engineering standards) (Stone-Romerio *et al.* 1997, 88).

2.3 Perceived Quality

The "perceived quality" approach explains product quality from "the viewpoint of the consumer, making quality a subjective assessment dependent on perceptions, needs and goals of individuals" (Northen 2000, 230). Although various definitions of the concept of perceived quality exist, the simplest definition is the Juran's definition of "fitness for use" (Juran 1974).

Another definition of perceived quality by Aaker (1991) is the customer's perception of the overall quality or superiority of the product or service with respect to its intended purpose, relative to alternatives (Aaker in Northen 2000, 230-231).

Although there are a lot of definitions from many scholars, there is the common meaning shared by each of the definitions; which is, perceived product quality is the consumer's perception of overall components of product - both tangible and intangible characteristics. It may also include Garvin's seven dimensions of product quality, namely; performance, features, reliability, conformance, durability, serviceability, and aesthetics. Above all, it is different from the actual quality of products.

According to Aaker and Joachimsthaler (2000), perceived quality is "a special type of association, partly because it influences brand associations in many contexts and partly because it has been empirically shown to affect profitability." Furthermore, perceived quality

may lead to consumer satisfaction, which is determined by perceived performance and expectation (Chaudhuri 2002).

Perceived product quality may also play a key role in choosing among competing brands, especially when the consumers are uncertain of product performance, attributes, and quality. Dawar and Parker (1994) state that "signals mostly serve as heuristics in assessing product quality when;

1. there is a need to reduce the perceived risk of purchase,
2. the consumer lacks expertise and consequently the ability to assess quality,
3. consumer involvement is low,
4. objective quality is too complex to assess or the consumer is not in the habit of spending time objectively assessing quality,
5. there is an information search preference and need for information." (Dawar and Parker 1994, 83)

Similar to definitions above, Zeithaml (1988) defines perceived quality as "the consumer's judgment about a product's overall excellence or superiority" (Zeithaml 1988, 3) and identifies four aspects of perceived quality:

- Perceived quality is different from objective or actual quality.
- Perceived quality is a higher level of abstraction rather than a specific attribute of a product.
- Perceived quality is a global assessment that in some cases resembles attitude.
- Perceived quality is a judgment usually made within a consumer's evoked set.

These aspects are explained below:

Perceived quality is different from objective or actual quality

"Objective quality" is the term used to describe the actual technical superiority or excellence of the products (Hjorth-Anderson 1984). In the literature, the term refers to measurable and verifiable superiority on some predetermined ideal standard(s). Quality ratings, published from sources such as *Consumer Reports*, are used as reliable quantitative data in research studies (Curry and Faulds 1986). According to Zeithaml (1988), "objective quality" is closely related to other quality concepts that are used to describe technical superiority of a product. For instance, Garvin (1983, 1984a, 1984b) discusses product-based quality and

manufacturing-based quality. Product-based quality includes the amounts of specific attributes or ingredients of a product. Manufacturing-based quality involves conformance to specifications declared by manufacturing teams. In this perspective, the ultimate goal of high quality is to seek for "zero defects - doing it right the first time" during the production. Conformance to requirements (Crosby 1979) and internal and external failure rate (Garvin 1983) are other definitions that illustrate manufacturing-oriented notions of quality.

However, contrary to objective quality, perceived quality includes consumer's judgment about the superiority or excellence of a product. The objective or actual quality would have little or no impact unless the consumers perceive that the quality of products they are interested in meets their requirements. This perspective is similar to the user-based approach of Garvin (1983) and differs from product-based and manufacturing-based approaches (Aaker 1991). It can be viewed as the difference between overall quality and unobserved quality.

Perceived quality is a higher level abstraction rather than a specific attribute of a product

According to Zeithaml (1988), "level of abstraction" refers to the many levels in the memory in which "product information is retained". The simplest abstraction level is the product's attributes and the the most complex level is the value or payoff of the product to the consumer. Young and Feigin (1975) reveal, in their "The Grey Benefit Chain" in Figure 2.3, that products and their attributes are emotionally and psychologically linked in consumers' minds. Since the perceived quality of a product is strongly related with personal values and preferences, it is cognitively a high level of abstraction (Zeithaml 1988; Young and Feigin 1975).

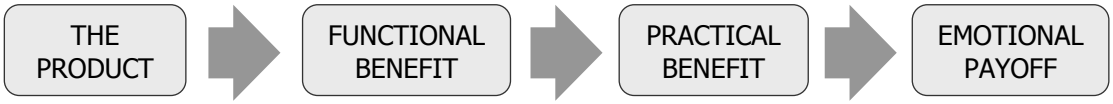

Figure 2.3 The Grey Benefit Chain (Source: Young and Feigin 1975)

Smith (1993) explains the differences between quality and physical attributes of an object in two terms: *quality is relational* and *is not directly measurable*:

> "Notions like weight, length, color and age are typical property concepts. Quality is different from such attributes in two respects. First, it is not directly measurable. Quality is not a physical characteristic of an object and consequently it cannot be

> directly measured by physical means. Rather, quality is an abstract characteristic that encompasses a variety of more or less physical attributes. […] Second, quality is a relational attribute. Such attributes apply to an entity but characterize it only in relationship to something else. […] Rather than being an inherent attribute of things, quality indicates the relationship between certain of the entity's attributes- its *quality characteristics* "(Smith 1993, 236).

Perceived quality is a global assessment that in some cases resembles attitude

Olshavsky (1985) views quality as a form of overall evaluation of a product, similar in some ways to attitude (Olshavsky 1985 in Zeithaml 1985). Holbrook and Corfman (1985) agree with Olshavsky, suggesting that perceived quality acts as a relatively global value judgment that mediates the effects of perceived beauty, convenience and fun on overall performance. According to Lutz (1986), there are two forms of quality: *cognitive quality* and *affective quality*. Similar to Holbrook and Corfman, affective quality shapes the overall judgments of the consumer which also intervene the attitudes towards the products. Cognitive quality is related to the consumer's quality assessments which are mediated by the attributes available to the consumer. If the attributes that can be assessed before purchase (search attributes) are more than those that can be assessed only consumption (experience attributes), then the quality assessment is a high level of cognitive judgment (see 2.3.1 Perceived Quality Attributes for more information on search and experience attributes). On the other hand, if the experience attributes are more than search attributes, the quality assessment is an affective judgment. Affective quality is relatively more likely for services and consumer nondurable goods (where experience attributes dominate) whereas cognitive quality is more likely for industrial products and consumer durable goods (where search attributes dominate) (Lutz 1986 in Zeithaml 1988).

Perceived quality is a judgment usually made within a consumer's evoked set

Zeithaml (1988) clarifies that evaluations of quality usually take place in a comparison context. Maynes (1976) defines product as "the set of goods which, assuming perfect information regarding their characteristics and prices, would in the consumer's judgment serve the same general purpose for some maximum outlay" (Maynes 1976, 555).

Maynes explains that this concept is personal and subjective. Each individual decides for himself which examples of goods are sufficient to be seriously considered for possible purchase (in Zeithaml 1988).

The "perfect information" assumption in the Maynes' definition proposes that all the examples of goods are potentially relevant to the consumer's purchase decision and the consumer is totally aware of the all products even for those showing similar product characteristics within a different product category (Maynes 1976).

The "maximum outlay" expresses the maximum amount of expenditure that the consumer restrained himself at the beginning of purchase process (Maynes 1976). For example, in terms of size, comfort, performance and other attributes, a BMW 3.16i sedan might be qualified as a "compact" and high-quality sedan. However, for some consumers, the €34,186 price of BMW 3.16i would exceed their budget limits and thus eliminate BMW from their "compact and high-quality sedan" product group.

Based on Maynes' description, it can be argued that the range of products, quality of which consumers compare, are generated within the consumers' evoked set (in Zeithaml 1988)

2.3.1 Perceived Quality Attributes

Quality is considered as a diverse concept which is based on several dimensions that cannot be evaluated thoroughly by a consumer. In most cases, consumers tend to use alternate or indirect indicators of quality to make a judgment of perceived product quality (Oude Ophuis and Van Trijp 1995). These indicators that form the overall judgment of the consumer are based on visible or invisible product attributes, which may have been experienced prior to purchase, during the consumption, or even in years after the consumption.

In the literature, quality attributes was first mentioned by Nelson (1970). Nelson (1970) identified two types of quality attributes: *search attributes* and *experience attributes*.

Steenkamp and Van Trijp (1996) explain search attributes as;

> Search attributes are any informational stimuli that can be ascertained through the senses prior to consumption, and, according to the consumer, have predictive validity for the product's quality performance upon consumption (Steenkamp and Van Trijp 1996, 97).

This definition indicates that consumers look for search attributes before the purchase and the consumption of the product. Andersen and Philipsen (1994) define search attributes as

"a search attribute has low pre-costs of quality detection and thus allows the consumer to shop around and find the best-quality product by simple inspection" (Andersen and Philipsen 1994, 2).

On the other hand, Steenkamp and Van Trijp (1989) define experience attributes as;

> Experience attributes are the judgments for the performance quality of a product and are formed by experiencing the product during the usage/consumption (Steenkamp and Van Trijp 1989).

Steenkamp and Van Trijp (1989) also explain that the product's rating according to quality attributes can only be established by consuming the product. Prior to consumption, since the benefits of the product are unknown, consumers have no sign to determining the rating of a product on its quality attributes. Andersen and Philipsen (1994) explain experience attributes as "an experience attribute has high pre-costs but low post-costs since quality information is obtained by the consumer as a by-product of use after the purchase; this information provides input to the decision making about repeated purchases" (Andersen and Philipsen 1994, 2).

Darby and Karni (1973) add *credence attributes* to Nelson's categorization:

> Credence qualities [or attributes] are those which, although worthwhile, cannot be evaluated in normal use. Instead the assessment of their value requires additional costly information. [...] The line between experience and credence qualities of a good may not be always sharp, particularly if the quality will be discerned in use, but only after the lapse of a considerable period of time (Darby and Karni 1973, 68-69).

Andersen and Philipsen (1994) explain credence attributes as "having high pre-costs and high post-costs of quality detection; as a result the consumer has to rely on third-party judgments or on the brand's credentials, i.e. the undisputed record of honesty, competence and determination with respect to the quality of supply" (Andersen and Philipsen 1994, 2).

2.3.2 Intrinsic and Extrinsic Quality Cues

According to Oude Ophuis and Van Trijp (1995), "the quality perception process to have two stages in which consumers first choose surrogate indicators of product quality, (i.e. quality

cues) from an array of product-related attributes, and then combine their evaluations of these individual cues into an overall judgment of product quality" (Oude Ophuis and Van Trijp 1995, 178). This definition indicates that quality cues are considered as a part of search, experience and credence attributes; and help consumers develop an overall judgment about the quality of the product. Defining "perceived quality cues" which are used to predict both search attributes and experience attributes, Olson and Jacoby (1972) splits quality cues into "intrinsic" and "extrinsic" cues (see also Northen 2000).

Intrinsic cues refer to attributes that cannot be changed or manipulated without also changing the physical characteristics of the product itself. Conversely, extrinsic cues are the attributes that are not part of the physical product (Bhuian 1997; Olson and Jacoby 1972; Northen 2000; Steenkamp and Van Trijp 1989; Oude Ophuis and Van Trijp 1995; Zeithaml 1988; Grawal 1997).

Oude Ophuis and Van Trijp (1995) state that "intrinsic quality cues are always closely related to the physical product" in contrast with extrinsic cues which "[…] are, from a marketing perspective, very interesting because they can be manipulated without the need to modify the physical product" (Oude Ophuis and Van Trijp 1995, 179-180).

Northen (2000) claims that "intrinsic cues are not able to communicate credence attributes"; rather, they are more successful at search attributes and in predicting experience attributes, whereas "extrinsic cues have the capacity to communicate both experience and credence attributes" (Northen 2000, 234). Northen (2000) defines intrinsic cues for foods as color, smell, leanness, marbling, cut, and juiciness and extrinsic cues as package materials, information/labels and store.

Zeithaml (1988), however, states that "package could be considered an intrinsic or an extrinsic cue depending on whether the package is part of the physical composition of the product (e.g., a dripless spout in detergent or a squeezable ketchup container), in which case it would be an intrinsic cue, or protection and promotion for the product (e.g., a cardboard container for a computer), in which case it would be an extrinsic cue" (Zeithaml 1988, 6).

Zeithaml (1988) regards flavor, color, texture, and degree of sweetness as intrinsic cues for beverage market, and price, brand name, and level of advertising as examples of extrinsic cues to quality.

According to Bhuian (1997), the intrinsic marketing cues are suitability, personal pride, appearance, reliability, and workmanship; and extrinsic marketing cues are price, availability, repair and maintenance, warranties and guarantees.

Besides, Grawal (1997) focuses on flawlessness, durability and appearance as intrinsic cues, while he considers distinctiveness as an extrinsic cue.

Suitability, personal pride, appearance, reliability, and workmanship; color, smell, leanness, marbling, cut, and juiciness (for foods); flavor, color, texture, and degree of sweetness (for beverages) can thus be regarded as intrinsic cues. On the other hand, price, brand name, brand image, manufacturer's image, store name, retail store image, the country of origin, distribution channels, certificates, availability, repair and maintenance, warranties and guarantees, advertising, market share, distinctiveness can be considered to be extrinsic cues (see Table 2.1).

Table 2.1 List of Intrinsic and Extrinsic Quality Cues

Study	**Intrinsic Cues**	**Extrinsic Cues**
Northen (2000)	color	package materials
(for food market)	smell	information/labels
	leanness	store
	marbling	
	cut	
	juiciness	
Zeithaml (1988)	flavor	price
(for beverage market)	color	brand name
	texture	brand image
	degree of sweetness	level of advertising
Bhuian (1997)	suitability	price
	personal pride	availability
	appearance	repair and maintenance
	reliability	warranties and guarantees
	workmanship	

Table 2.1 (continued)

Grawal (1997)	flawlessness durability appearance	distinctiveness
Various		manufacturer's image store name retail store image the country of origin distribution channels certificates availability market share

2.3.2.1 Appearance as an Intrinsic Cue

Appearance involves the physical composition of the product and describes how the product looks and feels to the consumer. Since intrinsic cues are related to the physical characteristics of a product and cannot be changed or modified without also changing these characteristics, the appearance of a product can be defined as an intrinsic cue.

Garvin (1984c) states that appearance of a product (i.e., how a product looks, feels, sounds, tastes, or smells) is clearly a matter of personal judgment and a reflection of individual preference (Garvin 1984c, 107). Berkowitz (1987) agrees with Garvin, stating that when it is difficult to assess the quality directly, consumers tend to employ easily identifiable cues such as price, brand, country of origin or product appearance. For example, consumers simply look at a chair and conclude that sitting down that chair would be softer, more comfortable, more relaxing, or healthier than any other chair, even if it is not at all (Berkowitz 1987).

Bonner and Nelson (1985) showed in their research that the appearance of a product is positively related to the perceived quality of the product. The higher the consumer values the appearance, the higher the consumer's perception of quality.

Appearance may also influence the consumer preferences. It may lead a consumer to prefer an "attractive" but "unreliable" product over the one that is "unattractive" but highly

"reliable" (Grawal 1997). For example, a consumer wishing to buy a car may build his/her purchase decision more on the physical appeal (i.e., appearance) than its brand, price or country of origin.

In their study of four quality cues, Dawar and Parker (1994) studied the effects of physical appearance, price, brand name and retailer reputation on perceived product quality. They listed these cues in order of their importance in consumers' quality perception as:

1. Brand Name
2. Price
3. Product Appearance
4. Retail Reputation or Store Name

Brand names have been more important than price, which is more important than physical appearance. Finally store name or retail reputation has been found to be the least important in consumer's quality perception (Dawar and Parker 1994).

Figure 2.4 summarizes the relationship between product quality, perceived quality and product appearance.

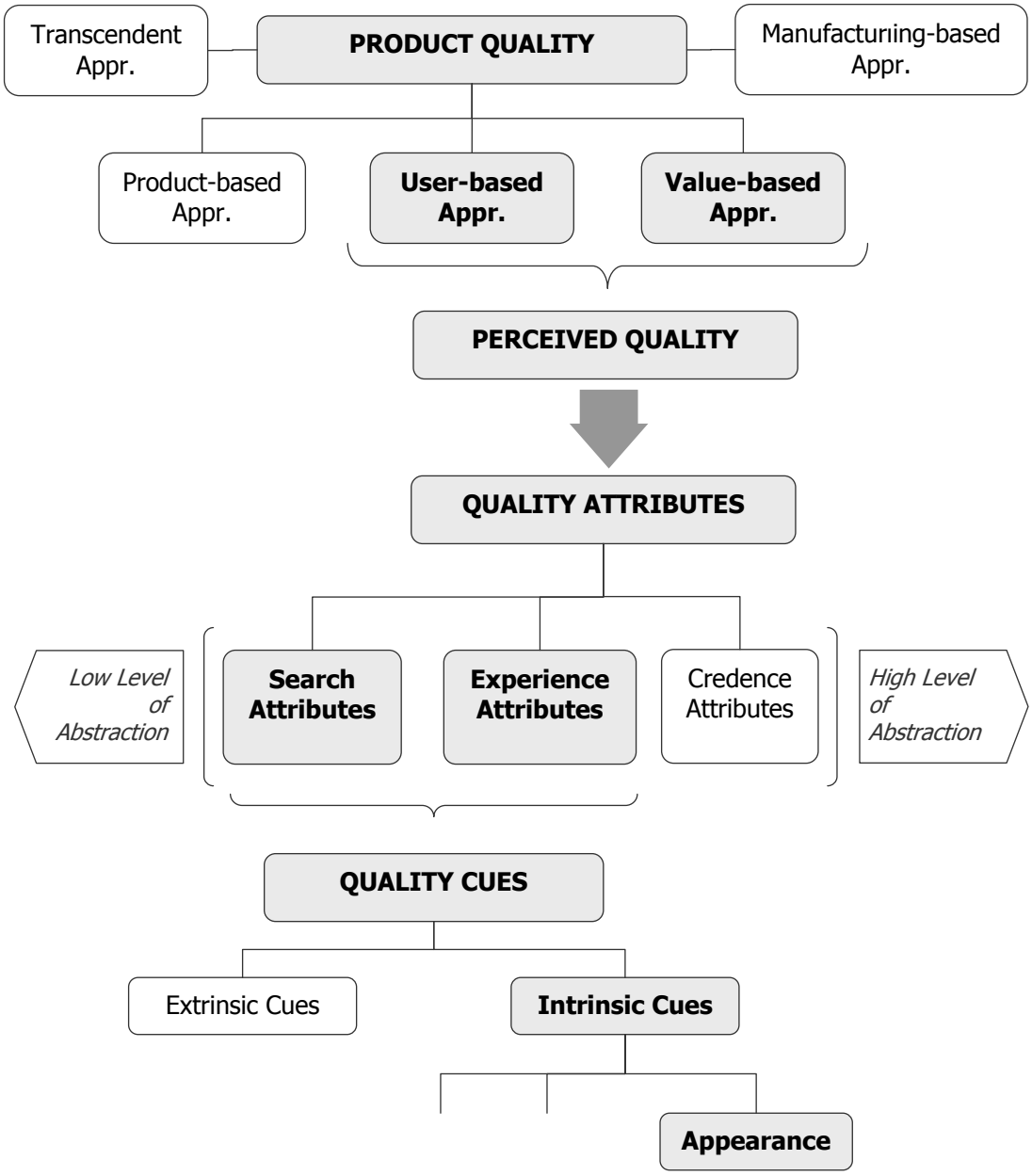

Figure 2.4 Product quality, perceived quality and product appearance

CHAPTER 3

PRODUCT APPEARANCE

The appearance of a product is a central concern of design and most person - product relationships (i.e., interactions) begin with (the perception of) a product's appearance (Izzi and Caplan 1972). Design and appearance of a product play a crucial role in communicating a product's identity, functions and use to consumers.

Bloch (1995) defines that "a *product's form* represents a number of elements chosen and blended into a whole by the design team to achieve a particular sensory effect". These elements include the perceptual characteristics of a product, such as "shape, scale, tempo, proportion, materials, color, reflectivity, ornamentation, and texture" (Bloch 1995, 17)

3.1 Importance of Product Appearance

Since the technology gaps between companies become smaller and companies are able to produce products that are similar with respect to features, quality, and costs (i.e., price), the companies are searching for ways to gain a sustainable competitive advantage in the hope of protecting or improving their market positions (Kotler and Rath 1984; Veryzer 1995). Thus, as an important determinant of consumer behavior, the form or design of a product may contribute to its success in several ways.

In complicated markets such as electronic consumer goods, household appliances etc., product form is one way to gain consumer notice (Bloch 1995). Berkowitz (1987) gives Braun (German consumer electronics manufacturer) and Zenith (Swiss watch producer) as examples to emphasize how a company can capture large amounts of market share by attracting customers with innovative designs and distinguishing appearances, most of which are permanently displayed at Museum of Modern Art, New York (Berkowitz, 1987). Swatch also used a range of unusual product forms to successfully stand out in the market for wristwatches (Bloch 1995).

With new product offerings, a distinctive design may force competing designs to become obsolete and may help a company gain advantage in competing with the new competitors, since the newly designed products will catch the consumers' attention easier (Midgley 1977 in Bloch 1995). According to Car Magazine Online, Ford revealed its new design philosophy: "Kinetic Design", the successor of "Edge Design", in 2008. New philosophy drew immediate attention of consumers with its distinctive product appearance, and changed the aesthetic values in automotive industry, which forced existing brands to develop new design philosophies to compete. (See Figure 3.1)

Figure 3.1 Ford's new kinetic design language (Source: Ford Motor Company (http://www.ford.com))

According to Berkowitz (1987), especially in aggressive price markets, design variants of size, color, shape, packaging, features and accessories (i.e., product appearance) are a basic means for creation of the differential advantage which sells new products and enables firms to cope with demographic, social, cultural and economic changes (Berkowitz 1987).

The form or exterior appearance of a product is important as a way of communicating information to consumers (Nussbaum 1993). For example, Oxo Good Grips Kitchen Gadgets by Smart Design possesses a compact, simple form to communicate ease of use and ergonomics. Offering highly usable products which communicate their ergonomic information to the consumers, including children as well; Oxo Good Grips are on the market for more than 19 years (see Figure 3.2) (Moore 2006).

According to Kotler and Rath (1984), a product's appearance also helps companies develop corporate and brand identities. Companies, such as IBM, Herman Miller, Olivetti, Bang&Olufsen and Mazda have distinctive design philosophies which help them develop and reinforce a recognizable character and thus "stand out from the crowd" (Kotler and Rath 1984).

Figure 3.2 Oxo Good Grips line of ergonomic kitchen tools (Source: BusinessWeek (http://images.businessweek.com/ss/07/06/0630_naoto/source/2.htm))

Product form affects people's lives by creating emotional impacts on users. Desmet (2003) proposes five categories of emotional responses that products may elicit. *instrumental, aesthetic, social, surprise* and *interest*.

Instrumental emotions (such as disappointment or satisfaction) arise from concerns of whether a product will assist the user in accomplishing its objectives. *Aesthetic emotions* (such as disgust or attraction) are related to perceivable characteristics of products (how they look, feel, smell, taste or sound), which may "both delight and offend our senses". *Social emotions* (such as indignation or admiration) are associated to the appraisal of a product's compliance with socially determined standards. *Surprise emotions* (such as amazement) are stimulated by the consideration of novelty in a design. Finally, *interest emotions* (such as boredom, fascination or inspiration) are related with the motivation of "challenge combined with promise" (Desmet 2003; see also Crilly *et al.* 2004). Each of these categories of emotions results from the appraisal of the product.

Product appearance may also have long lasting influences. Although many goods are quickly discarded or consumed, the aesthetic characteristics of more durable products can create emotional bonds with users as products become part of their environment (Pye 1978). The strength of the emotional bonds between the user and the product may create attachment or detachment. Savaş (2004) defines attachment and detachment as:

> Along with their interests, past experiences, future goals, values, ideas, culture, etc., people may respond to different aspects of a product and live different experiences with that product, therefore, give it a meaning in different ways. The emotions felt towards a product are evoked by these meanings and may provide the attachment or cause the detachment (Savaş 2004, 317-318).

This definition implies that when a person becomes attached to a product, (s)he experiences more positive emotions towards it and is more likely to use the products with care and postpone its replacement as long as possible (Mugge 2004). Thus, product attachment may increase a product's lifetime and may help create iconic products in a period of time. For example, Vespa Scooter (Figure 3.3), Apple iMac (Figure 3.4), Sony Walkman (Figure 3.5) and Thonet No.14 Chair (Figure 3.6) are all regarded as iconic products in the history and still bring delight to the consumers, even decades after their creation (Slack 2006).

Figure 3.3 Vespa Scooter (Source: Piaggio & C. S.p.a. (http://www.vespa.com))

Figure 3.4 Apple iMac (Source: Apple inc. (http://www.apple.com))

Figure 3.5 Sony Walkman (Source: Sony Corp. (http://www.sony.com))

Figure 3.6 Thonet No.14 Chair (Source: http://idhistory.mybin.co.kr/)

3.2 The Information Communicated through the Appearance

Designers communicate with consumers through their products. As described in the basic model offered by Shannon (1948), the system of communication is composed of five elements: "source, transmitter, channel, receiver, and destination" (Shannon 1948, see also Crilly et al. 2004) (see Figure 3.7).

Figure 3.7 Shannon (1948)'s basic model of communication (Adapted from Crilly *et al*. 2004)

When product design process is adapted to Shannon's model of communication, the designer might be regarded as "the source of the message". The product itself might be assumed as "the transmitter" and the environment in which the consumer interacts with the product might be regarded as "the channel" (Monö 1997 in Crilly *et al.* 2004) (see Figure 3.8)

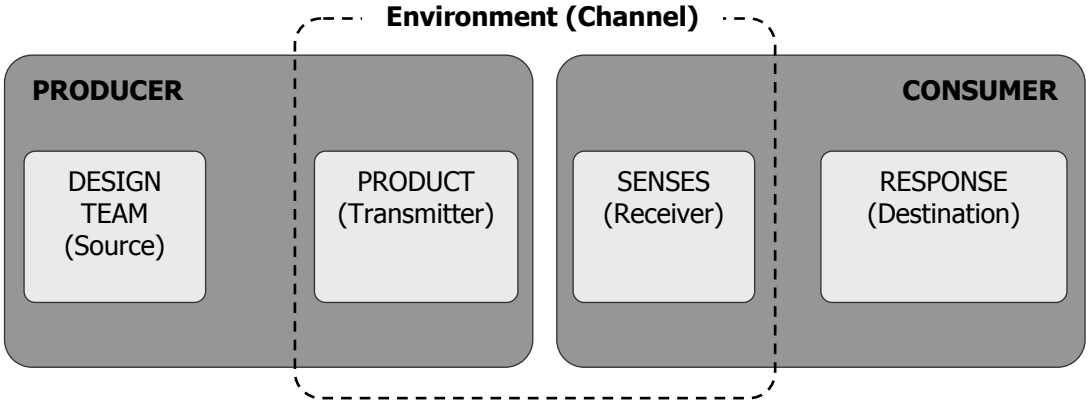

Figure 3.8 Basic framework for design as a process of communication (Adapted from Crilly *et al*. 2004)

In other words, in "the environment" channel, the consumer interacts with the product, which is "the transmitter", to receive the information communicated by the designer, or the design team through the appearance and develops responses as a result of this interaction (Crilly *et al.* 2004).

The literature shows that the appearance of a product can influence this interaction and consumers' responses and product evaluations in several ways. Several authors examined the roles of the product (or package) appearance in consumers' product evaluation (Bamossy *et al.* 1983; Bloch 1995; Garber 1995; Garber *et al*. 2000; Veryzer 1993; Veryzer 1995; Crilly *et al.* 2004). Many of these scholars tried to conceptualize the types of information communicated by the product and how design and visual appearance of a product influenced consumers' cognitive/behavioral responses in a consumer/product context.

Veryzer (1995) explains that the design of a product plays a vital role in the interaction between consumer and product and thus affects consumer behavior (e.g., comprehension, categorization, aesthetic response, preference, choice, use/performance, etc.); and defines three aspects of product appearance:

> It is important for consumer researchers to adopt a conceptualization of design that acknowledges the different aspects of product design (i.e., *functional*, *communicative*, and *aesthetic*) and the relationships and trade-offs among them. These aspects represent different roles that the design of a product can play. The roles are the different but often interrelated bases for the interaction between person and object (i.e., consumer and product) (Veryzer 1995, 642).

Bloch (1995) argues that a product's design represents a set of design goals and constraints decided by the designer during the design process. These goals and constraints include aesthetic, functional and ergonomic considerations which a product should communicate via its form (e.g., a visually demanding appearance, comprehension of intended function of the product, communication of ease of use etc.).

Bamossy et al. (1983) extend the above-mentioned roles of appearance by adding the symbolic value of a product. They claim that the symbolic content, on which the product evaluations are based, affects the consumers' purchase decisions and behavioral responses.

Norman (2004) distinguishes three different levels of inferences which human beings' response to objects in their environment: *visceral level*, *behavioral level*, and *reflective level*. At the visceral level, physical features—look, feel, and sound— dominate. The visceral level makes spontaneous judgments of what is good or bad, safe or dangerous and sends appropriate signals to the motor system and warns the rest of the brain to start the affective processing. Behavioral level is about function, understandability, usability, and physical feel. Reflective level includes the meaning or use of a product perceived by the consumer (Norman 2004).

Cupchik (1999) distinguishes three kinds of meanings attached to industrial design objects: *sensory/aesthetic meanings*, *cognitive/behavioral meanings*, and *personal/symbolic meanings*. In this classification, *Sensory/aesthetic meanings* refer to sensory information gained from the appearance of the products– visual, auditory, tactile, taste, or scent. *Cognitive/behavioral meanings* integrate the structural, functional, and ergonomic features of tools with user expectations and knowledge. *Personal/symbolic meanings* are related to self-concept and dynamic processes affecting a person's motivation for engaging an industrial design object (Cupchik 1999).

Crilly *et al.* (2004) claim that the signal (or information) transmitted by a product's appearance is received by the psychological senses– touch, taste, smell, hearing and the most important one, vision– and creates cognitive response which is the evaluations and judgments that the user or consumer makes about the product based on the information perceived by the senses. Crilly *et al.* define three categories to describe cognitive response to product appearance:

- *Aesthetic impression* is defined as the emotional response arising from the perception of "attractiveness" in products.

- *Semantic interpretation* is related to the functions, ergonomic aspects and quality of the product.
- *Symbolic association* refers to the personal and social significance attached to the design. (Crilly *et al.* 2004)

Schoormans and Creusen (2005) identify six roles of product appearance (namely aesthetic value, symbolic value, functional value, ergonomic value, attention drawing ability and categorization) which the product communicates to the consumers. Different from the other approaches mentioned above, Schoormans and Creusen include the attention drawing ability of a product and categorization in the roles a product may possess through its appearance (Schoormans and Cruesen 2005).

Table 3.1 summarizes the classifications of the roles of product appearance in the literature by various scholars.

Table 3.1 Different approaches to describe the roles of appearance

Study	**the Roles of Appearance**
Veryzer (1995)	*aesthetic value* *functional value* *communicative value*
Bloch (1995)	*visually demanding appearance* *comprehension of intended function* *communication of ease of use*
Crilly *et al.* (2004)	*aesthetic impression* *semantic interpretation* *symbolic association*
Cupchik (1999)	*sensory / aesthetic response* *cognitive / behavioral response* *personal / symbolic response*
Norman (2004)	*"visceral level" in design* *"behavioral level" in design* *"reflective level" in design*

Table 3.1 (continued)

Schoormans and Creusen (2005)	*aesthetic value* *functional value* *ergonomic value* *symbolic value* *attention drawing ability* *Categorization*

Although there are differences between different authors in the number of roles they define and the terms they use for product appearance, mainly three types of information that a product's appearance conveys are suggested in this study:

- Communication of aesthetic information
- Communication of functional and ergonomic information
- Communication of symbolic information

A description of these three roles and their implications for product appearance are described in the following sections.

3.2.1 Communication of Aesthetic Information

Aesthetic value (or information) of a product is related to the emotional pleasure derived from "attending to, perceiving, and appreciating an object-for-itself, without regard to whatever utilitarian function it might perform" (Holbrook 1981, 37). A consumer can value the "look" of a product purely for visual pleasure, and find it attractive, elegant or beautiful (Schoormans and Creusen 2005).

The word "aesthetics," which is usually used in reference to the "beautiful", is derived from the Greek word "aisthetikos", which means "pertaining to a sense of the beautiful". The term was first introduced into the literature by Alexander Baumgarten in 1735 (Veryzer 1993). Today, the most frequently referred definition of "aesthetics" in the literature is "the study of the psychological responses to beauty and artistic experiences" in the American Heritage Dictionary (2000).

Although the term "aesthetics" and the subject of beauty have been studied for centuries, there is still no consensus on the definition of the term "aesthetics" and what is beautiful or

what makes a product beautiful (Crilly *et al.* 2004). The questions arguing the sources of aesthetics like "whether the aesthetics and beauty is a result of a subjective evaluation of a person or an objective property of the object" or "whether it is a judgment or an experience of a person over the object" are still in debate and have been discussed by various scholars. There are two major views explaining the sources of aesthetic impression: *objective view* and *subjective view* (Lavie and Tractinsky 2004).

The objective view is emerged from the discussions about the existence of universal beauty and emphasizes the perception of certain design elements (e.g., line, plane, color etc.) and principles (e.g., unity, contrast, balance, proportion etc.) (Lewalski 1988; Veryzer 1993; Crilly *et al*. 2004). This approach identifies beauty through pleasing proportions (such as the Golden Section) and strict geometric rules. "Products from the Bauhaus school were highly rational, and reflected the work of the Gestalt psychologists, who identified the tendency to perceive or construct symmetry, regularity and harmony even when it is not actually present" (Crilly et al. 2004, 556). In this sense, Gestalt psychology is concerned with the perception of the objects and the tendencies of the mind to interpret this perception in a "special, orderly, organized and simplified" way (Lewalski 1988, 174).

On the other hand, *the subjective view* relates aesthetic impression with emotions and argues that "the analysis of aesthetics should view beauty within the subject and not in the object" (Lavie and Tractinsky 2004, 273). This view conceptualizes a connection between beauty and emotion. Desmet (1999) argues that consumer products can be powerful emotional stimuli and can elicit a wide variety of emotions; pleasant and unpleasant, strong and mild, simple and complex etc. When a product elicits an emotion, it is stimulated by a specific product-subject relationship and within a specific context (Desmet 1999).

Another complicating aspect of emotions is that they are personal (Bamossy *et al.* 1983). Veryzer (1993) states that the emotional reactions that a person has to an object (i.e., product) based on his or her perception of the object creates an aesthetic response. The perception involves certain design elements (e.g., line, plane, color, etc.) and principles (e. g., unity, contrast, balance, proportion, etc.) of objective view (Veryzer 1993). Even within the same context and product-subject relationship, two persons can still experience different emotional reactions, and thus aesthetic responses towards a product. For example, when first confronted with the new Volkswagen Beetle, some people present positive responses whereas the others respond negatively (Desmet 1999). Since individuals' tastes and aesthetic judgments are different from each other, Crozier (1994) claims that "the presence of demonstrable differences between peoples' judgments makes it difficult to believe in

universal aesthetic principles (and that) inherent responses (may be) a mirage" (quoted in Crilly *et al*. 2004, 556).

Coates (in Crilly *et al*. 2004) has developed his own theory based on the perception of product attractiveness. According to his theory, positive aesthetic impression is obtained via a balance between two opposing factors: *information* and *concinnity*. Information is related to the *contrast* and *novelty* of the product, which may attract consumer's interest and attention. Concinnity is related to the *order* in a product and *sense* of the consumer, which may assist the consumer in understanding the product.

Coates suggests that both information and concinnity have two components explained with objective view and subjective view.

- *Objective information* is the contrast of the product within its context and environment. As an objective property, this component is determined by the way in which certain design elements are combined.

- *Subjective information* is the novelty perceived in the appearance and determined by the extent that the product differentiates from others that the consumer is familiar.

- *Objective concinnity* is the order perceived in the appearance which is determined by the application of design principles like the Gestalt Principles, and geometric rules such as the Golden Section.

- *Subjective concinnity* is the degree of the sense a product conveys to the viewer. The consumer's personal, cultural, and visual experiences affect the subjective concinnity (Crilly *et al.* 2004).

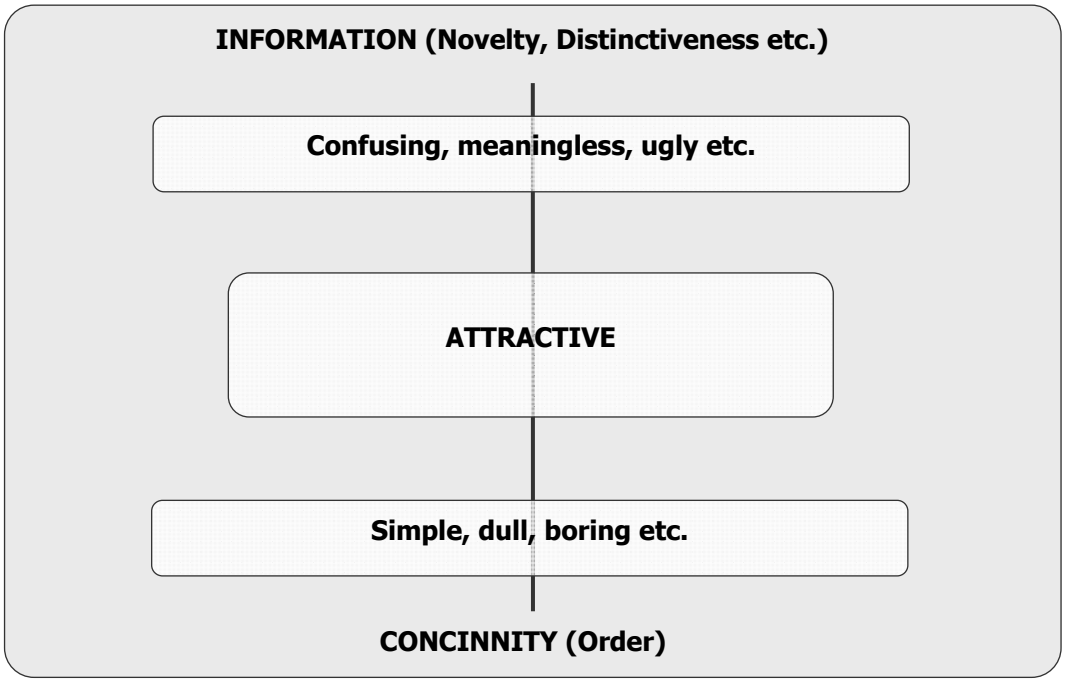

Figure 3.9 Four aesthetic ingredients and their effects on aesthetic response (Coates 2003 in Crilly *et al*. 2004)

These four aesthetic ingredients mentioned above are shown in Figure 3.9.
Coates explains consumer's aesthetic and emotional responses to the information and concinnity of a product as;

> If information [comprising objective and subjective components] outweighs concinnity, the product will be considered *confusing, meaningless* and *ugly*. Alternatively, if concinnity [also comprising objective and subjective components] outweighs information, the product will be considered *simple, dull* and *boring*. Coates suggests that only when information and concinnity balance, and the product is at once engaging and comprehensible, will it be considered *attractive* (Crilly *et al.* 2004, 558).

3.2.2 Communication of Functional and Ergonomic Information

The functional information of a product can be communicated to some extent by the visual form of the product. This aspect of the appearance may comprise practical properties such as function, performance, efficiency and ergonomics (Schoormans and Creusen 2005; Crilly *et al.* 2004). For example, a screwdriver may be used to turn screws; shoes may be worn on feet; a hammer may be used to drive a nail into a wall (Veryzer 1995).

Referring as *semantic interpretation* in their study, Crilly *et al.* (2004) limit the definition of *product semantics* to what the product appears to communicate about its functional and ergonomic aspects (i.e., performance, durability, safety, efficiency, ease of use, ease of operation etc.).

Monö (in Crilly *et al.* 2004) identifies four semantic functions through which a product's visual form may communicate its utilitarian properties: *description, expression, exhortation* and *identification*.

- *Description* refers to the inferences through which the appearance of a product presents its purpose, mode-of-operation and mode-of-use. For example, a commonly cited example is the case of a chair, which describes "sitting" due to its flat and stable surface (Norman 1988). From description, consumers may infer the practical benefits the product will offer and how they must interact with it.

- *Expression* refers to the properties that the product appears to exhibit. For example, the control panel of a dishwasher may express users its functions and how to operate it. The properties that a design expresses may assist the consumer in understanding how the object should be treated.

- *Exhortation* refers to the requests or demands that a product proposes to those perceiving it. For example, LED indicators on most of the devices may be used to give feedback to the consumers. If the door of a refrigerator is left open, it may request to close the door through sound and the warnings on the display. Through exhortation the product may elicit the appropriate actions from the user for correct and safe operation.

- *Identification* refers to the information related to the origin and affiliation of a product. For example, the manufacturer, product type, product range and specific model may be communicated by text, graphics, and logo. The identification of a product assists the user in understanding the category to which the product belongs (Monö 1993 in Crilly *et al.* 2004).

Similar to Monö's classification, Norman (1988) reveals three clues describing how the appearance of products may assist the users in assessing how products to be used (i.e. functional and ergonomic information): *affordances*, *constraints* and *mappings*.

- *Affordances* refer to "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used . . . Affordances provide strong clues to the operations of things. Plates are for pushing, knobs are for turning…" (Norman 1988, 9).

- *Constraints* set "limits on what actions can be performed" (Crilly *et al*. 2004, 561). The appearance of a product provides information to the users about its usage by revealing which actions would be possible, and which actions would be limited. For example, considering a pair of scissors, the holes are affordances, which allow the fingers to operate the product. The sizes of the holes provide constraints to limit the way it's used. While the big hole may be used by most of the fingers, the small hole suggests only one (Norman 1988).

- *Mappings* refer to the relationship between a user's action and the corresponding outcomes of the system. Successful mappings occur if the manufacturer's conceptual usage model and the user's mental model correspond (see Figure 3.10). Based on their previous experience, training and instructions, the users form mental models by interpreting perceived actions and appearance of the product (Norman 1988)

Figure 3.10 The relationship between manufacturer's conceptual model and user's mental model (Adapted from Norman 1988)

Schoormans and Creusen (2005) states that "ergonomic information entails cognitive aspects of use, such as how logical a product is to operate, as well as emotional aspects in that it is not frustrating in operation and gives an enjoyable usage experience" (Schoormans and Creusen 2005, 67; see also March 1994).

Similarly, Cupchik (1999) relates functional and ergonomic information to the emotional responses and defines *cognitive/behavioral meanings*, located in the center of the interface between the user and the tool (i.e. product):

> These [cognitive and behavioral] meanings integrate the structural, functional, and ergonomic features of tools with user expectations and knowledge. They provide a

> critical bridge between the purpose and structure of industrial design objects and users who must understand and utilize them. . . The behavioral component of meaning relates to performance and ease of use of the design object, both alone and in conjunction with other tools. It is here that bodily arousal processes help or hinder performance and where success or failure in the use of the tool shapes feelings of pleasure or frustration, respectively (Cupchik 1999, 75)

Desmet (2003) proposes *instrumental product emotions* to define the perceptions of whether a product will assist the user in achieving their objectives (Desmet 2003; Crilly *et al.* 2004). If the product achieves the goals set by the user, it is appraised with emotions like *satisfaction*. Similarly, if the product fails to accomplish the goal, then it is appraised with emotions like *dissatisfaction*.

3.2.3 Communication of Symbolic Information

Consumer goods carry and communicate symbolic meanings through their appearance (Schoormans and Creusen 2004). Levy (1959) points out that "people buy things not only for what they can do, but also for what they mean" (Levy 1959, 118).

Crilly *et al*. (2004) refer symbolic information as *symbolic association* and state that "symbolic association is determined by what the product is seen to symbolize about its user, or the socio-cultural context of use" (Crilly *et al*. 2004, 562).

Similarly, McCracken (1986) defines three places in which cultural meanings are located: *the culturally constituted world*, *the consumer good* and *the individual consumer*. The symbolic meaning is drawn from the culturally constituted world and transferred to a consumer good. Then the meaning is drawn from the object and transferred to the individual consumer (McCracken 1986) (See Figure 3.11).

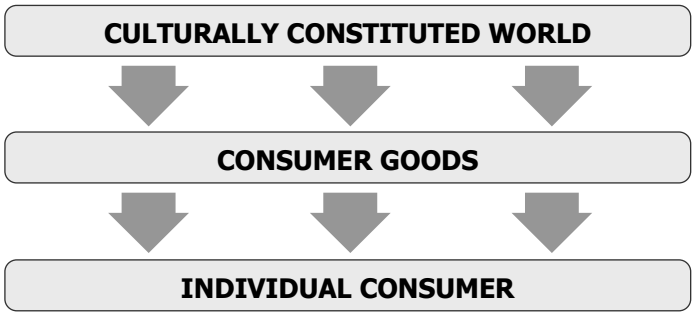

Figure 3.11 Transfer of meaning (Adapted from McCracken 1986)

Cultural Meaning: Environment and Context

Culture is an important determinant of consumers' interpretations and associations (Schoormans and Creusen 2005). For example, meanings of colors may vary from culture to culture. "In America and Europe, the color white stands for purity, and brides traditionally dress in white; in Japan it is a color of mourning" (Schoormans and Creusen 2005, 66-67).

The environment and context surrounding the individuals shape their senses by the beliefs and assumptions of the culture. Culture constitutes the world by supplying it with meanings (McCracken 1986). To do so, culture divides the environment and context of human beings into cultural categories. McCracken (1986) defines cultural categories as;

> *Cultural categories* are the conceptual grid of a culturally constituted world. They determine how this will be segmented into discrete, intelligible parcels and how these parcels will be organized into a larger coherent system (McCracken 1986, 73)

For example, all cultures specify the category of time and place. A certain style of appearance may evoke associations with the time or place (e.g., the Fifties, the Sixties etc.) (Schoormans and Creusen 2005) (See Figure 3.12).

Figure 3.12 The influence of culture on fashion and automotive in different decades (Source: http://www.corbisimages.com/Default.aspx)

According to McCracken (1986), the most important cultural categories are those that cultures create in the human community–the distinction of class, status, gender, age and occupation.

Crilly *et al.* (2004) state that "the categorical symbolism associated with products allows the expression of group membership, including social position and status. These categorical

meanings serve to integrate the consumer with those that surround them." (Crilly *et al.* 2004, 563).

Symbolic Meaning of Consumer Goods

Products are created according to the cultural categories and satisfy the needs and expectations of those categories. Objects are vital and tangible records of intangible cultural meanings (McCracken 1986). Thus, modern goods are recognized as psychological things which are symbolic representations of not only personal attributes and goals but also social patterns and motivations (Levy 1959).

Bell (1991) names the symbolic value of products as *social or status-enhancing value* and defines as;

> *Social or status-enhancing value* [of a product] adopts an orientation toward extrinsic motivation in which the consumption of some product serves as a means to the end of making a desired impression on others. This extrinsically motivated purpose focuses on the role played by possessions as visible markers of social structure. Ownership of specific products or brands, as well as their particular mode of consumption, may connote status, stage in the life-cycle, political or religious affiliation, occupational category, and so on (Bell 1991, 245)

This definition implies that in many cases, consumers may be motivated to acquire and to own products mainly because they want to express a specific social role or desired status. Therefore, products with strong symbolic connotations embody the common values, opinions and categories that exist in the culture and may be consumed mainly because they help consumers to achieve these symbolic meanings.

Although the definitions above prove that the appearance of a product conveys symbolic information to the consumers, there is also some debate about how much of this information belongs to the appearance. Crilly *et al.* (2004) state that there are external factors which often determine the meanings attached to the products. Historical precedents, social conventions and marketing programs all influence the symbolic meanings. Therefore, Crilly *et al.* claim that the symbolic information conveyed through the product may be less dependent on product appearance than aesthetic, functional and ergonomic information.

Similarly, Keller (1993) distinguishes benefits into "functional", "experiential" and "symbolic" benefits, explaining that *functional benefits* are the more intrinsic advantages of product consumption and usually correspond to the product-related attributes. *Experiential (or ergonomic) benefits* relate to what it feels like to use the product and also correspond to the product-related attributes. On the other hand, *symbolic benefits* are the more extrinsic advantages of product consumption, which usually correspond to non-product-related attributes (i.e. brand name and image, price etc.) and relate to underlying needs for social approval or personal expression and outwardly directed self-esteem (Keller 1993). Based on this classification, Wee and Ming (2003) give an example of a BMW automobile:

> The experiential or functional benefits the owner could derive from the automobile consist of all the utility that can be derived from the physical product, such as the convenience, the comfort, the assurance of safety, and even the emotional and aesthetic satisfaction. As for the symbolic benefits, the BMW brand could signal success, an adventuresome spirit, youthfulness and flamboyance. The owner of the BMW car is seen to possess those same values above, which, in tum, signal social esteem, status, taste and class (Wee and Ming 2003, 211).

Both the classification of Keller (1993) and the related example of Wee and Ming (2003) imply that the symbolic value of a product may be highly dependent on extrinsic attributes such as brand image, advertisement and marketing strategies, instead of intrinsic attributes such as the appearance.

Consumer's Self-Concept and Personal Identity

Consumer's self-concept can be defined as "the individual's definition of the situation, for example in response to the existential questions of (who am I?) and (what is the meaning of my life?) in this complex world" (Wee and Ming 2003, 208). According to Belk (1988), "self-concept comprises not only one's body parts, but also one's thoughts, ideas, experiences, as well as external objects such as personal possessions (money, clothes, shoes), more substantial possessions (like cars and property), and even persons, such as spouses, children, and friends (Belk 1988; Wee and Ming 2003).

As the self is embedded into social practices, one's self-identity must be validated through social interaction (Levy 1959). Symbolic meanings, then, are used to construct, maintain and express these self-identities. Symbolic values and meanings are important to consumers not only because they help to retain a sense of the past, but they also help consumers to

categorize themselves in society, and they can even communicate these symbolic meanings coded by cultural categories such as social status, gender, age, traditions and group identity (Belk 1988).

To better understand these status and roles in life, people need to have a personal identity. To achieve a personal identity, an individual relates and compares himself with the other individuals around, a process of which is known as *symbolic interaction*, where individuals tend to share symbolic meanings of objects in their environment to be able to reflect their selves to others (Solomon 1983, Wee and Ming 2003).

Symbolic interaction, thus, provokes individuals' continuous needs to seek and have more possessions (i.e., products) to be able to reposition themselves in their environment. Since the meaning is transferred from culture to the products and from products to the consumers; the shared meanings and values ascribed to the possessions differ between individuals, over time and over culture (Belk 1988).

3.3 Consumer Response to Product Appearance

The appearance of the product may elicit a variety of psychological responses from consumers (Bloch 1995). Exploring the impact of physical surroundings on the behaviors of both customers and employees, Bitner (1992) suggests in his study that consumers in service firms respond to dimensions of their physical surroundings *cognitively*, *emotionally*, and *physiologically*, and as a result of these responses consumers may "approach to" or "avoid from" their environment. Bitner states that both cognitive and emotional responses are psychological responses and differ from physiological responses, which is a pure physical behavior. Furthermore Bitner argues that these three responses are clearly interdependent and may occur simultaneously. For example, a person's beliefs about a place, which is referred as a cognitive response, may well influence his/her emotional responses to that place and may result with feeling discomfort and vice versa. (Bitner 1992).

Similarly, Bloch (1995) and Crilly *et al.* (2004) classify the psychological responses of consumers to product form into two categories: *cognitive response* and *affective response.*

In this study, three responses to product appearance are distinguished: *cognitive response, emotional response* and *behavioral response*, which are explained below.

3.3.1 Cognitive Responses

Cognitive response refers to the judgments that the user or consumer makes about the product based on the information perceived by the physiological senses (Crilly *et al.* 2004, 552). Regarding the perception of the appearance of a product, seeing is the most important sense. Hence, the other senses–hearing, touch, smell and taste–should also be considered, since they may all affect the judgments of the consumer (Crilly *et al.* 2004). Consumers rely on their senses to conceive the information communicated by the appearance. Thus, cognitive response to product appearance can be described as comprising of three aspects of product appearance: *aesthetic, symbolic* and *functional/ergonomic information,* which are also explained in the previous chapters.

However, according to Crilly *et al.* (2004), these three aspects of response do not operate independently, instead they are highly inter-related (i.e. each aspect may influence the others). For example, assessment of the functions of a product (functional/ergonomic information) may influence judgments about the perception of the attractiveness (aesthetic information) and change the social values it may connote (symbolic information) (Crilly *et al.* 2004).

3.3.2 Emotional Responses

Desmet (2003) explains that an emotional response depends on four main parameters to emerge: *appraisal*, *concern*, *product* and *emotion.* The first three parameters, and their interaction with each other, determine if the product would elicit an emotion or not, and if so, which emotion would be evoked (see Figure 3.12) (Desmet 2003).

Appraisal is non-intellectual, automatic evaluation of the importance of how an event may harm or benefit an individual's situation in that event. The important aspect of appraisal is not *the situation* itself that the individual is subjected to, but *the meaning* that the individual attaches to that event.

In the case of products, Desmet (2003) argues that "an appraisal has three possible outcomes: the product is beneficial, harmful or not relevant for personal well-being. These three general outcomes result in a pleasant emotion, an unpleasant emotion or an absence of emotion, respectively. The notion that appraisals mediate between products and emotions explains why people differ with respect to their emotional reaction to a given product" (Desmet 2003, 3).

Concern is an individual's less or more stable preference for a certain situation. Desmet (2003) argues that any emotional response requires a concern so that the individual would be able to evaluate the significance of the situation for his well-being. According to Fridja (1986 in Desmet 2003), a concern is the reference point for an appraisal process: whether the situation will match or mismatch the preferences of the individual. Thus concern plays an important part in the emotional responses to consumer products. (Desmet 2003) (see Figure 3.13)

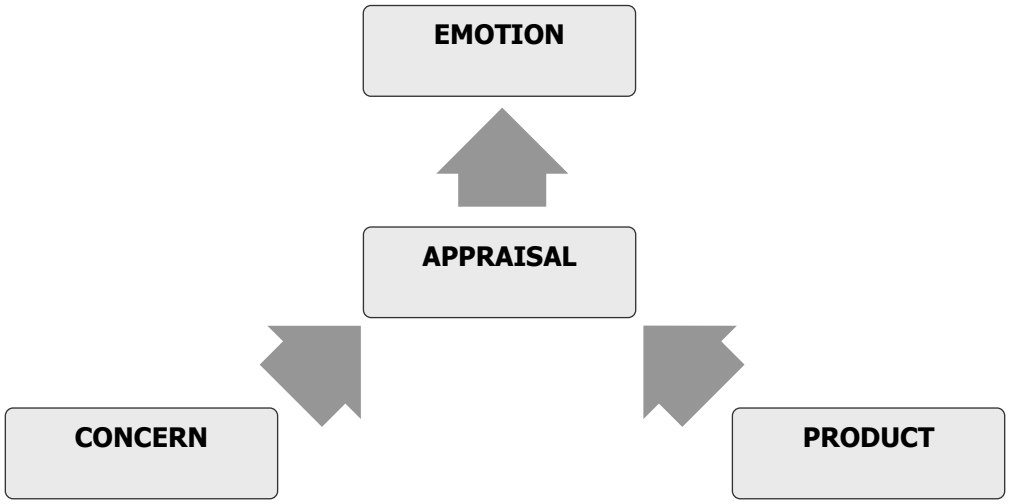

Figure 3.13 Basic model of emotional response (Adapted from Desmet 2003)

Mehrabian and Russell (1974 in Donovan and Rossiter 1982) propose that three basic emotional pairs guide the behaviors of the consumers in environmental situations. These emotional responses are:

1. Pleasure - Displeasure
2. Arousal - Nonarousal
3. Dominance - Submissiveness

Their model hypothesizes that any environment would produce an emotional state in an individual that can be characterized in terms of the three emotions.

Pleasure/displeasure emotions refer to the degree to which the person feels good, joyful, happy, or satisfied in the situation; *arousal/nonarousal* emotions refer to the degree to which a person feels excited, stimulated, alert, or active in the situation; and *dominance/submissiveness* emotions refer to the extent to which the individual feels in

control of, or free to act in, the situation (Mehrabian and Russell 1974 in Donovan and Rossiter 1982).

Desmet (2003) proposes five categories for the emotional responses that a product may elicit: *instrumental*, *aesthetic*, *social*, *surprise* and *interest*.

- *Instrumental emotions* stem from perceptions of whether a product will assist the users in achieving their objectives. A product that achieves the user's objectives is appraised as motive "compliant", and elicits emotions like *satisfaction*. Similarly, products that fail their objectives are appraised as motive "incompliant", and elicit emotions like *disappointment* (Desmet 2003; Crilly *et al.* 2004).

- *Aesthetic emotions* relate to the potential for products to "delight and offend people's senses" (Desmet 2003, 8). Products, or attributes of products, can be appraised in terms of their appealingness. The concerns that are the points of reference in the appraisal of appealingness establish the users' attitudes towards the product. Similar to objectives, the user elicits many attitudes, some of which are innate and others are learned. A product that corresponds with the user's attitudes is appraised as appealing and will elicit emotions like *attraction*. A product that conflicts with the user's attitudes is appraised as unappealing and will elicit emotions like *disgust* (Desmet 2003; Crilly *et al.* 2004).

- *Social emotions* result from the extent to which products are seen to comply with socially determined standards. Most standards are socially learned and represent the beliefs in terms of which moral and other kinds of judgmental evaluations are made. "Products that are appraised as valid in terms of the standards elicit emotions like *admiration*, whereas those that are apprised as invalid elicit emotions like *indignation*" (Desmet 2003, 9; Crilly *et al.* 2004).

- *Surprise emotions* (such as amazement) are driven by the perception of novelty in a design. Surprise emotions differ from the previous three emotion types because they are not related to a particular concern. Instead, "*pleasant surprise* is elicited by a sudden and unexpected match with any concern (i.e., a goal, attitude, or standard), and *unpleasant surprise* is elicited by a sudden and unexpected concern mismatch" (Desmet 2003, 10; Crilly *et al.* 2004).

- *Interest emotions* (such as boredom or fascination) are elicited by the perception of "challenge combined with promise" (Desmet 2003, 10). Products that are appraised as not holding a challenge and a promise either because they do not provide us with any bodily sensation or leave nothing to explore will elicit emotions like *boredom*. Products that are appraised as stimulating because they bring about some question or because they require further exploration will elicit emotions like *fascination* and *inspiration* (Desmet 2003; Crilly *et al.* 2004).

Each of the categories of emotion results from an appraisal of the product. With regard to perception of the appearance, the appraisal of a product is based on the aesthetic, symbolic and functional/ergonomic information derived from the appearance (Crilly *et al.* 2004). However the appraisal is not a result of a single type of information. Instead, various types of information may contribute to the various emotional responses (Crilly *et al.* 2004). For example, if a product is regarded as satisfying in terms of its aesthetic, semantic and social objectives, it may evoke instrumental and aesthetic emotions. Or if a consumer finds a novel product appealing at first sight, surprise emotions as well as aesthetic emotions may arouse.

3.3.3 Behavioral Responses

Consumers' psychological responses (i.e., cognitive responses and emotional responses) to the product appearance influence the way that they behave towards the product. There are two types of behavior which distinguishes the interested and uninterested consumers: *approach* and *avoidance* (Bloch 1995; Crilly *et al.* 2004; Bitner 1992, Foxall and Greenley 1999).

If the appearance of the product draws positive cognitive and emotional responses, the consumer would engage in *the approach behavior*, such as "extended viewing, listening, or touching" the product (Bloch 1995, 20). Approach responses are associated with further investigation of the product (i.e., seeking information about the product and willingness to visit retailers selling the product etc.); product purchase and product use (Crilly *et al.* 2004; Bloch 1995). According to Bloch (1995), "window shoppers" become "store visitors" as a result of approach behavior towards a product displayed in a shop window.

Moreover, Belk (1988) claims that after purchasing a product with a pleasing form, consumers frequently display it prominently, which is also regarded as an approach behavior during the product usage (Belk 1988). For example, most consumers tend to place their home appliances they find attractive visibly in their kitchen, living-room or bathroom.

Avoidance behaviors arouse when consumers response to a product with negative cognitive and emotional associations (Bitner 1992; Bloch 1995, Donovan and Rossiter 1982). "Avoid responses may be associated with ignoring the product, failure to purchase, product abuse and even hiding the product" (Crilly *et al.* 2004, 554) (see Figure 3.14).

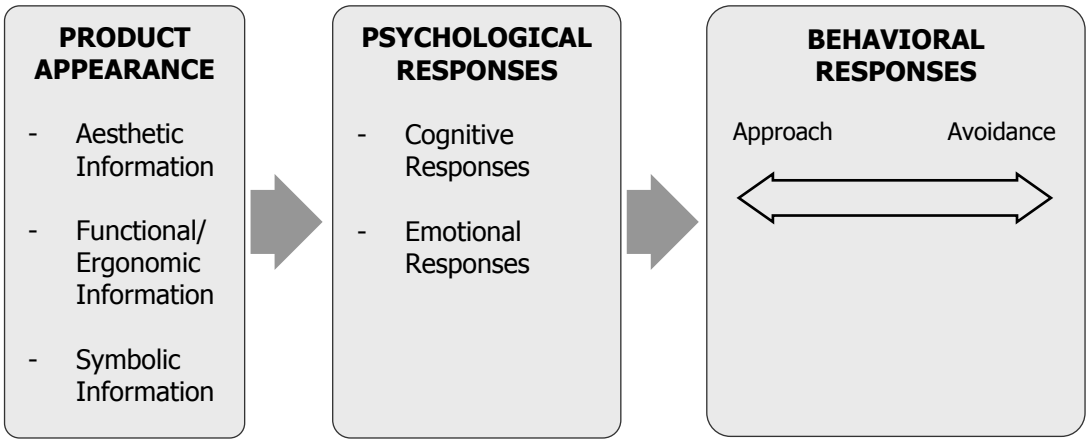

Figure 3.14 Consumers' psychological and behavioral responses to the product appearance (Adapted from Bloch 1995)

3. 4 Moderating Influences of Consumer Response to Product Appearance

In a consumer / product context, consumer reactions to the product form do not occur in isolation. Instead, there are several variables including *categorization*, *individual tastes and preferences* and *situational factors*, which moderate consumers' response to the products (Bloch 1995). These moderating influences may involve at any phase in the process of the communicating the appearance-related information and may influence responses to the appearance.

3.4.1 Categorization

When interpreting a product's appearance, consumers refer to previous knowledge related to the category of the perceived object as points of reference. These visual references "help the consumer to understand the product by reflecting generic designs, alluding to other concepts or evoking comparison with living things" (Crilly *et al.* 2004, 565). Thus, consumer response to design may be influenced by the visual references that consumer rely on for comparison, which is known as categorization.

Schoormans and Robben (1997) explain categorization as:

> *Categorization* is the process by which individuals respond to the variety and newness of information in their environment. Individuals group objects and events on the basis of perceived similarity and resemblance. The outcome of this process is the storage of information into categories. A newly formed category functions as a framework of knowledge by which individuals analyze new information (Schoormans and Robben 1997, 276).

Cohen and Basu (1987) consider categorization "a fundamental cognitive activity encompassing all forms of stimulus situations" (Cohen and Basu 1987, 456). "The categorization of knowledge allows [consumers] to identify novel items or events, respond to them in terms of [categorical classification], draw inferences about their features, and make casual or evaluative judgments" (Schoormans and Robben 1997, 276).

When consumers encounter to a stimulus (i.e., the appearance of a product), they tend to refer to their categorical knowledge to check whether the stimulus is more prototypical of the category or, in other words, visually typical. Garber (1995) defines visual typicality as "the look or appearance that most consumers would associate with a product category, and by which they identify brands that belongs to the category" (Garber 1995, 656).

Similarly, Veryzer and Hutchinson (1998) explain typicality as "prototypicality, or typicality, is the degree to which an object is representative of a category. Prototypes are usually defined as the central representation of a category or as possessing the average or modal value of the attributes of that category" (Veryzer and Hutchinson 1998, 375-376).

Consumers usually compare between "the target" and "the categorical" knowledge (Cohen and Basu 1987, 456). After the comparison, if "a product is difficult to categorize based on its appearance, consumers may not regard the product as a purchase alternative. For example, there might be some consumers who do not notice that the Philips Alessi coffee maker, with its atypical appearance, is a coffeemaker" (Schoormans and Creusen 2005, 68) (see Figure 3.15).

Figure 3.15 Philips coffeemaker by Alessi (Source: http://vdm.io.tudelft.nl)

According to Schoormans and Creusen (2005), "using verbal product descriptions, Meyers-Levy and Tybout (1989) found that products that differ slightly from the prototype are evaluated more positively than products that are either very typical or very atypical. Schoormans and Robben (1997) confirm that for package appearances; a slightly atypical appearance catches attention from consumers still remaining acceptable to them" (Schoormans and Creusen 2005, 69). Hekkert *et al*. (2003) claim that products with an optimal combination of prototypicality and novelty are preferred aesthetically.

3.4.2 Individual Tastes and Preferences

Bloch (1995) states that personal tastes and preferences such as innate design preferences, cultural/social context, design acumen, experience, personality etc. influences the consumer's psychological and behavioral responses and aesthetic appreciation (Bloch 1995).

3.4.2.1 Personal Characteristics

In any society, consumers differ in terms of age, gender, experience and personality. The variations and differences in their social setting, individuals vary in their tastes and preferences. Having different objectives, attitudes and standards, individuals exert different personal values, which results in not only variations in their preferences they express, but also variation in the importance of these preferences (Crilly *et al.* 2004; Bloch *et al.* 2003).

Bloch (1995) suggests that *design acumen*, *prior experience* and *personality* are the potential causes of influences of personal characteristics.

Design acumen reflects an ability to recognize, categorize and evaluate product designs (Bloch *et al.* 2003). These people exhibit more aesthetic taste than the others. Holbrook (1986) defines design acumen as visualizing/verbalizing tendency and indicates that some consumers favor visual over verbal models of information processing and that in making product choices, individuals with high visual sensitivity may regard to aesthetic elements more than those with low visual sensitivity (Holbrook 1986).

Experience is the one's prior involvement into and exposure to the more sophisticated design-oriented resources, beautiful things, motivations etc. in his/her social context. Through the experience, a person learns what to look for in evaluating between products and what the important determinants of attractiveness are (Bloch 1995).

With regard to *personality*, "variation in the goals, attitudes and standards held by different people characterize their concerns. Thus, the consumer's self-confidence, social aspirations and personal ideologies will influence response" (Crilly *et al.* 2004, 571).

3.4.2.2 Innate Design Preferences

Veryzer (1993) claims that some design principles (i.e., perception principles) are present very early in life and preferences related to these principles develop over time (Veryzer 1993). "These innate preferences are proposed for visual organization principles, such as unity (i.e., congruence in elements), proportion (e.g., "the Golden Section"), and symmetry" (Schoormans and Creusen 2005, 65).

According to Gestalt theorists, people inherently tend to prefer objects with order, symmetry, unity and harmony among elements (Bloch 1995). In his empirical study on the influence of design principles on product preferences, Veryzer (1993) confirmed that consumers prefer product designs that follow Gestalt laws of proportion and unity over designs that break the laws.

3.4.2.3 Cultural and Social Influences

As revealed in Chapter 3.2.3 Symbolic Information, preferences for product appearance are also shaped by the cultural norms and social forces. The acceptance of a particular style by people may have related with that culture's values and preference. Alexander (1979 in Bloch 1995) argues that "cultural norms regarding design are particularly important because they tend to overwhelm inner feelings and individual preferences" (Bloch 1995, 22).

McCracken (1986) states that products are encoded with a meaning which is derived from the culture; and consumers extract these codes and prefer products that communicate meanings that are desirable within the culture, the subculture or the society they belong to. Not only the established conventions of taste moderate consumers' response to products but also general trends and contemporary fashion can do.

3.4.3 Situational Factors

Situational factors moderate both psychological and behavioral responses to product appearance. There are four variables in particular*: consumer' motivation*, *sequence effects*, *social setting* and *marketing program influences*.

The *motivation* in viewing an object influences the consumer's intentions and concerns in evaluating the appearance. For example, while looking for a particular product, a consumer who is intrinsically motivated with aesthetic-oriented intentions or concerns may focus on aesthetic aspects of a product rather than functional/ergonomic aspects. However, in another case, the same consumer may value functional/ergonomic aspects more, if his/her motivation is towards goal-oriented intentions or concerns (Veryzer 1993; Crilly *et al.* 2004).

Sequence effects can be explained with the concept of *ensemble effect* suggested by Bell *et al.* (1991). According to the ensemble effect, the possession of one product affects the desire to own the other objects. Bell *et al.* (1991) argue that consumers evaluate ensembles of products, not in terms of individual components, but in terms of the aesthetic value of the social/cultural group which they belong to. Products that provide a positive harmony and consistency with already owned possessions may be appraised positively by the consumers (Bell *et al.* 1991; Bloch 1995).

Social setting is the conditions and effects surrounding the consumer during the appraisal of the product. The conditions, objects and people surrounding the consumer during the interaction with the product may influence the preferences (s)he expresses and the behavior (s)he exhibit (Crilly *et al.* 2004). For example, a consumer who may possess negative reaction to a certain appearance on his own may express more positive responses in the presence of other people around who express their appreciation of the appearance (Bloch 1995)

Product reactions may be shaped by the *marketing program* that surrounds the product. Advertising, the presentation of the product in the retailer, the design of the retail shop, product price, point-of-sale influences, competition and product predecessors may affect the perception of the consumer wither positively or negatively (Bloch 1995; Crilly *et al.* 2004).

Figure 3.16 summarizes the model of consumers' response to product appearance.

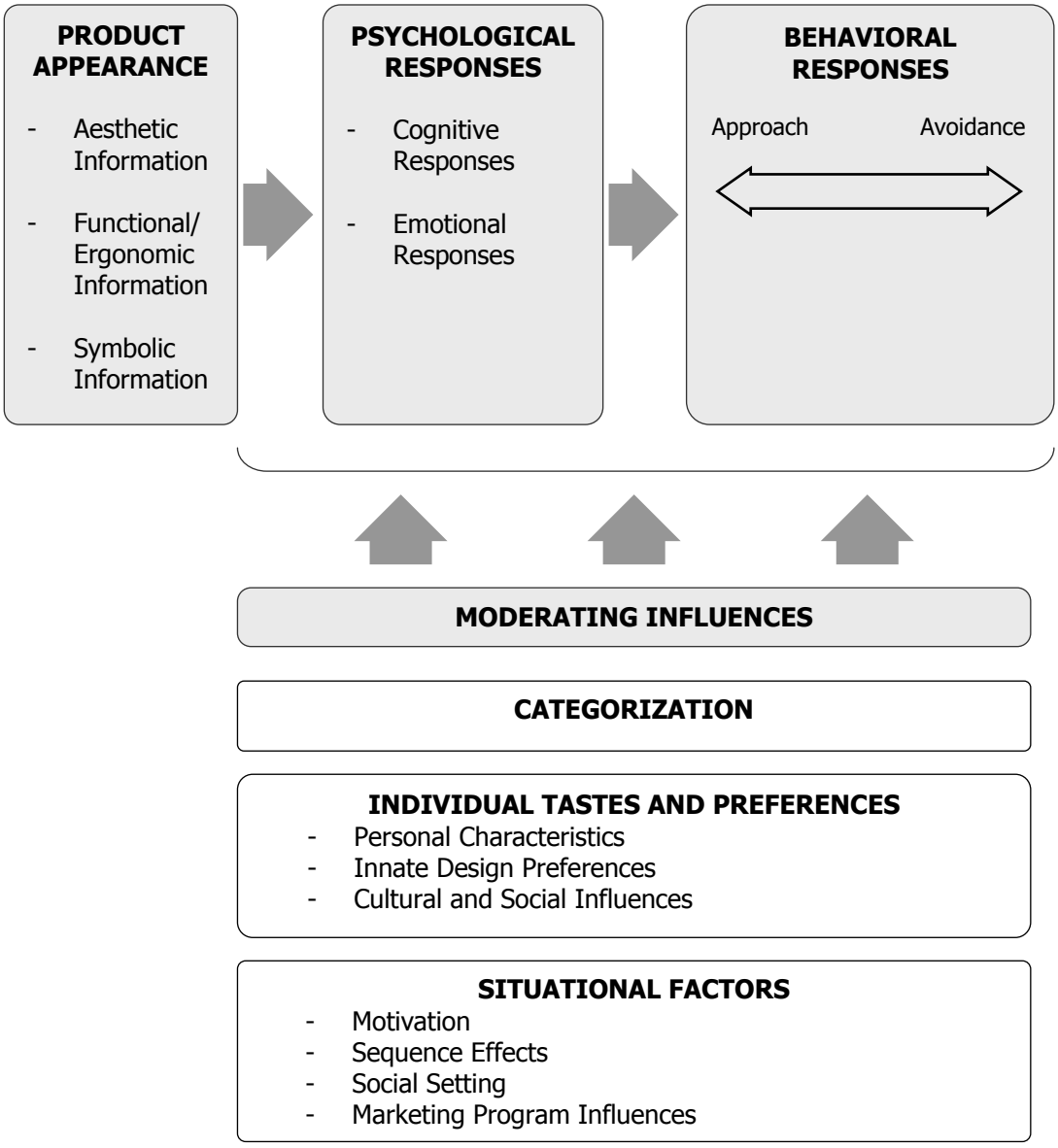

Figure 3.16 The model of consumer response to product appearance.

CHAPTER 4

FIELD STUDY: THE EFFECTS OF WASHING MACHINE APPEARANCE ON QUALITY PERCEPTION

4.1 Framework of the Study

Perceived product quality is a multi-dimensional, multi-faceted and multi-modal concept that when evaluating the quality of products, consumers take various dimensions and quality characteristics into account. For example, consumers of a drilling machine may regard ease of use, durability, reliability and performance as the parameters for high quality. For those consumers, the aesthetic appearance (i.e., physical attractiveness) or elegance of a drilling machine would be less important. For consumers of automobiles, on the other hand, elegance and attractiveness are as much important as durability, reliability, performance and ease of use. In other words, all these product attributes are similarly weighed in evaluating product quality. For other product types such as clothing, jewelry, cosmetic products, or tableware, beauty and elegance may even be the most important factors that consumers consider in making judgments about the quality of products. As Garvin noted "There is a clear need for more precise measures of product quality. Few studies have recognized the multiple dimensions of quality, and still fewer, the possibility that quality may have different meanings in different industries" (Garvin 1984c).

In this study, perceived product quality is defined as "the consumer's judgment about a product's overall excellence or superiority" (Zeithaml 1988, 3), which depends on the consumer's subjective evaluation of a product's attributes such as appearance, brand, price etc.

As argued in the chapters above, appearance, which is regarded as one of the intrinsic quality cues, communicates four types of information to the consumer:

- Aesthetic Information
- Symbolic Information
- Functional Information
- Ergonomic Information

As revealed in the literature review, the information conveyed by the product is received by the consumer's physiological senses– vision, touch, taste, smell and hearing; and creates cognitive, emotional and behavioral responses towards the product. Similar to quality, behavioral responses of the consumer (i.e., approach to or avoidance from the product) is the result of the consumer's subjective evaluation of appearance. Thus, the main motivation of this study is to study the relationship between the product appearance and quality perception (see Figure 4.1)

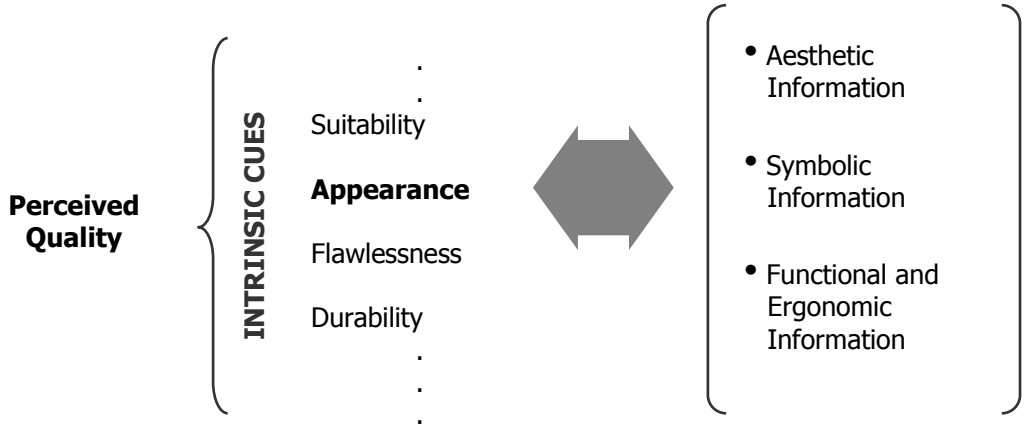

Figure 4.1 The research framework

One of the few studies which considers the influence that product appearance has on perceived product quality is Davis' (1985) research on skirts, in which one of the items to be measured is the quality of the design of the skirts; while the other items were the construction, fabric and notion of the skirts. Another study is Stone-Romero *et al.*'s (1997) research on measuring the effects of appearance, flawlessness, durability and distinctiveness on perceived product quality by showing pictures and descriptions of automobiles (in the preliminary study) and athletic shoes (in the main study) (Davis 1985; Stone-Romero *et al.* 1997). However, one of the limitations of both studies is that multiple-item measures (i.e., appearance, flawlessness, distinctiveness etc.) of perceived product quality have been used. Instead of focusing on a single-item (i.e., the appearance) and deeply investigating its influence on perceived quality, these studies offer general implications of multiple items on perceived quality. This study aims to fill this gap by offering a dedicated study of the impact of a single item, product appearance, on perceived quality.

Another limitation of these studies is the products used to measure the perceived quality. In Davis' (1985) study, skirts have been used as the stimuli and obviously, the results of this study can not be generalized to consumer products. First of all, the purchase rates and durability of fashion products are less than more durable goods such as household appliances and automobiles. Second, for fashion products, the influence of trends and fads on the consumer's judgments is higher than durable goods. This study focuses on washing machine, a consumer product, to overcome these limitations.

4.2 Research Questions

The aim of this study is mainly to investigate whether the three aspects of consumers' cognitive response to product appearance, identified in the literature review, do indeed exist in consumers' quality perception; to present the level of influence of aesthetic, symbolic and semantic (i.e., functional and ergonomic) information on the perception; and to search whether this presumed correlation exists during the consumer's product evaluation. Eventually this study questions whether appearance is effective in creating judgments of quality.

The effectiveness of moderating influences to consumers' response to product appearance and the influence of age, gender, marital status and education level to the relationship between the appearance and perceived quality are also studied, although it is not a primary concern of this study.

Thus, the main research question of this study is:

- How does product appearance influence consumers' quality perception for consumer goods?

The study also aims to find answers for following sub-questions:

- Which aspects of product appearance are effective in creating the judgments of quality?
- What is the role of each aspect of product appearance (i.e. aesthetic value, symbolic value or functional and ergonomic value) on consumers' perception of quality?

In order to answer these questions; a quantitative study has been conducted to determine consumers' approaches to product appearance and perceived product quality.

4.3 Product Samples, Test Environment and Profile of the Participants

4.3.1 Product Samples

In previous chapters, product appearance is defined as one of the intrinsic quality cues that consumers most often use to predict the attributes they desire in a product (Northen 2000). Quality cues are observed mainly prior to purchase as search attributes and partially after purchase as experience attributes. If the cost of experiencing the product is high, consumers will most often use search attributes to predict the attributes they desire in a product. Automobiles, consumer electronics and durable goods are examples of such products which consumers mostly rely on quality cues and search attributes before purchasing. Among all these consumer products, white goods have the largest user population since they are considered as satisfying the basic and almost essential needs of consumers.

Table 4.1 reveals the number of durable goods in every 100 households in Turkey (Euromonitor 2008). Being one of the most widely used household products in Turkey, along with cooker, vacuum cleaner, oven and iron, washing machine was chosen as the product samples in this field study.

Table 4.1 Household ownership of durable goods in Turkey (Source: Euromonitor International 2008)

Product	% Households
Fridge freezers	48.5
Fridges	49.7
Freezers	2.9
Automatic washing machines	89.6
Dishwashers	27.9
Cookers	73.0
Ovens	65.0
Hobs	10.8
Microwaves	4.6
Food preparation appliances	57.9
Coffee machines	14.8
Upright vacuum cleaners	5.8
Cylinder vacuum cleaners	66.6
Wet and dry vacuum cleaners	8.4
Handheld vacuum cleaners	8.4
Irons	90.4
Hair care appliances	25.6

According to the report conducted by Euromonitor International in 2008, the annual sales of washing machines in Turkey are approximately 2,300,000 units in 2007. The number is predicted to reach 4.5 million units by the year 2012 (Euromonitor 2008).

Another reason to choose washing machine as the product sample is related to work definition of the author. The author of this study is currently working at a company producing white goods, Arçelik A.Ş. Thus, washing machine would also be a suitable product through which the author could have the possibility to integrate his experience, expertise and insights into the field study.

Three automatic washing machines differing in terms of their appearance and visual qualities like color, form and material were used as the product samples in the study. The products were from different brands with 6 kg washing capacity and 5-7 programs. The prices of the three products were nearly the same, varying between 900 – 1000 TL. The brand names were concealed to eliminate the influence of the brand image on the participants' choice sets.

Washing Machine "T"

Figure 4.2 Sample washing machine T

Washing machine T is a Bosch-brand washing machine with 6 kg washing capacity. The color of the product is completely white. The front door of the machine is ABS plastic and

there is a window made of glass inside the door. The control panel included a detergent container, a 7-segment display, buttons and control knob to choose the washing program.

Already existed in the market for several years, the product is regarded as typical and usual in appearance, together with the familiar control panel (see Figure 4.2).

Washing Macihe D

Figure 4.3 Sample washing machine D

Washing machine D is an Arçelik-brand washing machine with 6 kg washing capacity. The main color of the product is white. There is also a silver, ABS plastic decorative part in the control panel. The front door of the machine is ABS plastic and there is a window made of glass inside the door. The control panel included a detergent container, a 7-segment display, buttons and control knob to choose the washing program.

The product is regarded as typical but unusual in appearance. The product is similar to the existing products in terms of its ergonomic and symbolic values. On the other hand, having the decorative part in the control panel and presenting the more complicated controls in the control panel, the product is regarded as unusual in the aesthetic and functional information it communicates (see Figure 4.3).

Washing Machine M

Figure 4.4 Sample washing machine M

Washing machine M is an Indesit-brand washing machine with 6 kg washing capacity. The main color of the product is white and the front door of the product is silver- painted. The front door of the machine is ABS plastic. The control panel included 5 buttons, one of which is the power button and the color of these buttons is silver. The detergent container is located inside the door.

The appearance of the product M is regarded as atypical and unusual in terms of the aesthetic, symbolic, functional and ergonomic information conveyed (see Figure 4.4).

Table 4.2 reveals the level of novelty of the four types of information communicated by the three product samples.

Table 4.2 Aesthetic, Symbolic, Functional and Ergonomic novelty of the three samples

			
	Prodcut T	**Product D**	**Product M**
Aesthetic	Typical	Atypical	Atypical
Symbolic	Typical	Typical	Atypical
Functional	Typical	Atypical	Atypical
Ergonomic	Typical	Typical	Atypical

4.3.2 Test Environment

The study was conducted by a professional research company, namely 7P Think Tank Group, with the guidance of the author. Located in Istanbul, the company previously conducted both qualitative and quantitative consumer and advertising research for numerous companies from ten different countries, including Arçelik A.Ş. for white goods.

The study was held in 7P Think Tank Group's premises. Three washing machines were placed next to each other in a laboratory setting, with labels D, T and M attached. An interviewer and the author of this thesis were present in the room during the test as the conductor and no other external interference was allowed (see Figure 4.5).

Since the physical appearance is revealed as the third influencing cue after brand name and price in Dawar and Parker's (1994) study of perceived quality (see also Chapter 2 in this study), the brand name and price information of all three washing machines were concealed to minimize the effects of price and brand image on the participants' judgments.

Figure 4.5 Test environment

4.3.3 Profile of the Participants

To increase the reliability of the study and minimize the influence of personal tastes, preferences and previous experiences related to the products, 100 subjects from different gender, age, education level, marital status and socio-economic segment were used in the study. There are six major variants in deciding on the subjects:

Sex

Since the actual users of the washing machines are mostly women, the ratio of women to men was decided as 70/30, which indicates that the number of female participants in the study was 70, while it was 30 for the male participants (see Figure 4.6).

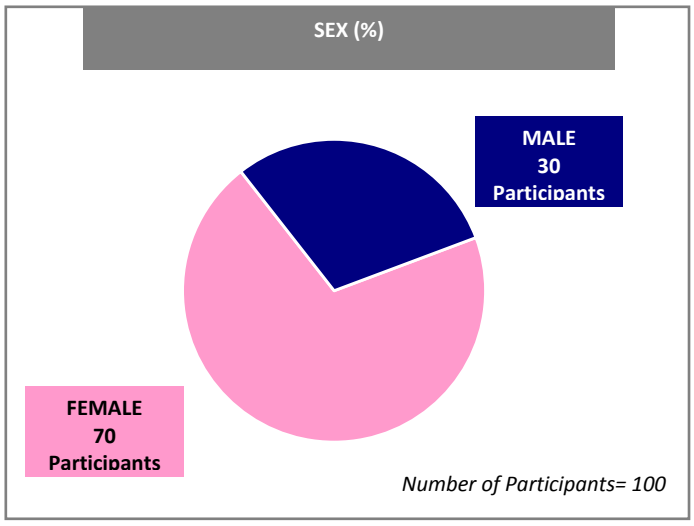

Figure 4.6 Sex distribution of the participants

Age

Washing machines are used by any consumer from 18 to 65. Moreover, the purchase may be performed by any of the consumers within this age group. Therefore there were 50 participants whose ages varied between 24 and 35 and 50 participants whose ages varied between 35 and 50 (see Figure 4.7).

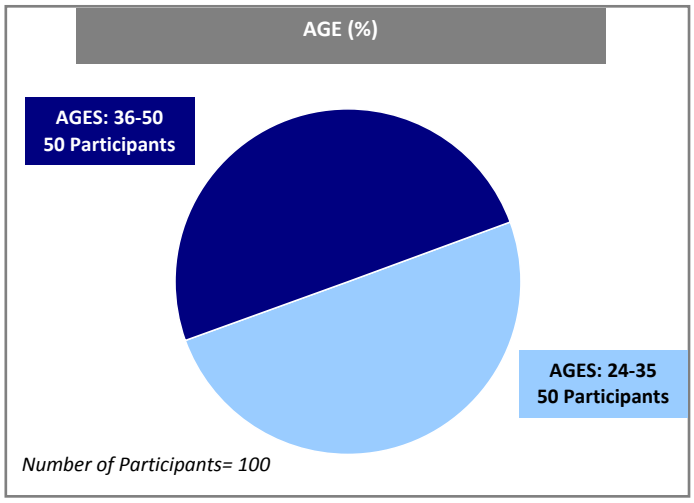

Figure 4.7 Age distribution of the participants

Marital Status

The purchase of washing machine is mostly performed by married or engaged couples. Thus the amount of married participants in the study was 80. The number of single / engaged participants was 20 (see Figure 4.8).

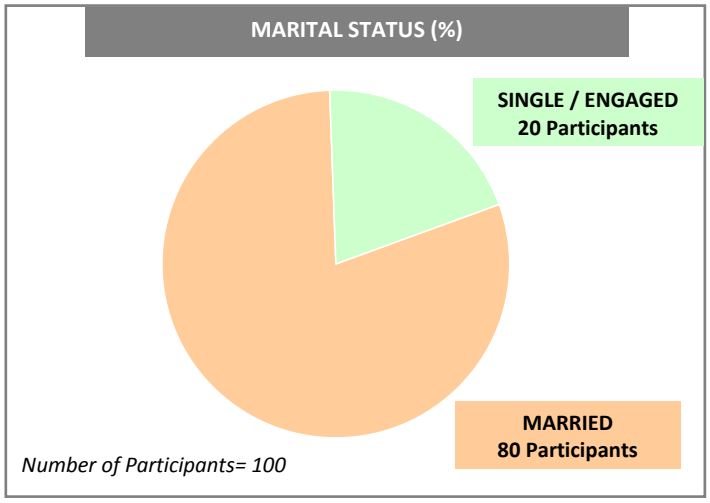

Figure 4.8 Marital status of the participants

Socio-economic Status (SES)

In lower socio-economic status, C2, D and E; the effects of price on product evaluation is so high that the appearance plays a less important role. Since it would be misleading to trace the impact of appearance on quality where the main decision is price-oriented, participants

from C2, D and E SES were not included and the participants were mainly chosen from B+, B and C1.

As the washing machines used in the study are mid-end in terms of prices and functions, A+ and A socio-economic status were excluded from the sampling (see Figure 4.9).

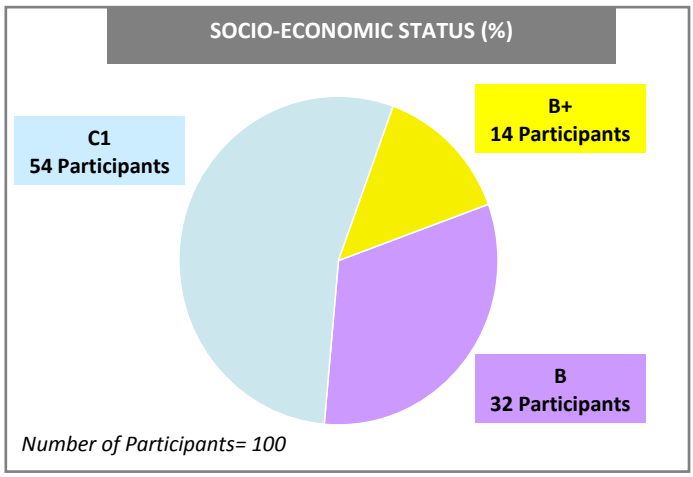

Figure 4.9 Socio Economic Status (SES) of the participants

Education Level

According to the *Adult Education Survey* conducted by Turkish Statistical Institute in 2007, the education level distribution of the population is as follow:

- 1.8% of the population - illiterate,
- 5.4% of the population - primary school graduate,
- 59,8% of the population – high school graduate
- 33% of the population – university graduate and above (see Figure 4.10).

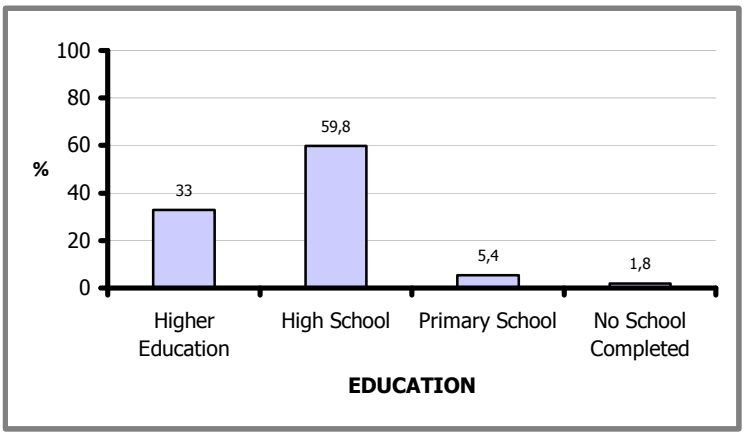

Figure 4.10 Adapted from *the Adult Education Survey, 2007* by Turkish Statistical Institute (Source: http://www.turkstat.gov.tr/)

Similarly, the education level of the participants in the study is decided based on the data given above. Thus, the numbers of university graduates, high school graduates and primary/secondary school graduates are 34, 63 and 3, respectively (see Figure 4.11).

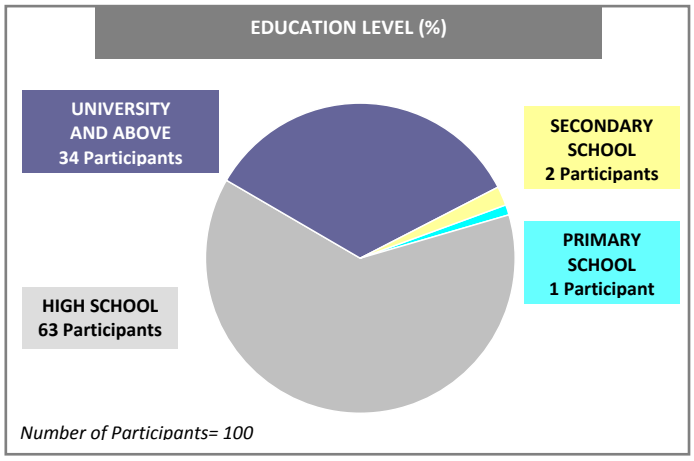

Figure 4.11 Education level of the participants

Employment

All male subjects used in the study are employed. For the female subjects, the number of "housewife" subjects is 49 and the number of working female subjects is 21 (See Figure 4.12).

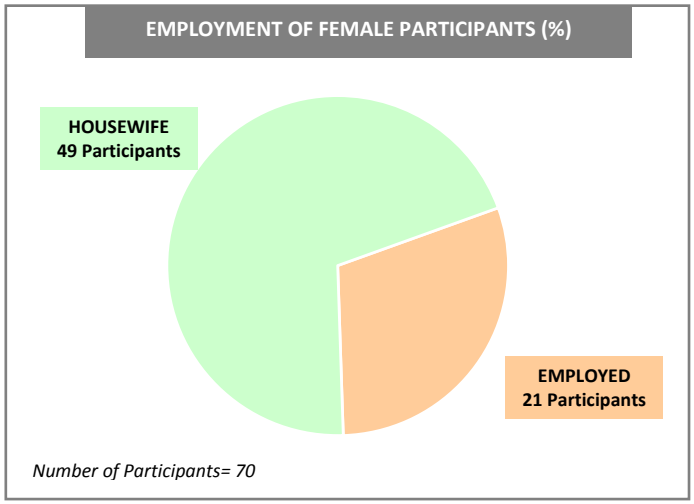

Figure 4.12 Employment status of the female participants

4.4 Questionnaire Design

The design of the questionnaire was carried of three phases:

4.4.1 Identification of the Semantic Space

The aim of this phase was to collect as many words and expressions that exist in the literature as possible to define a semantic space. The semantic space was aimed to provide input for defining the aesthetic, symbolic, functional and ergonomic expressions which would be used in the questionnaire. The words and expressions used by people to express the products and product attributes were collected from the previous studies of Crilly *et al.* (2004), Schoormans and Creusen (2005), Bloch (1995), Desmet (2003), Lewalski (1988), Norman (2004), Wee and Ming (2003), Garcia *et al.* (2005), Gianni and Monti (2002), Hsu *et al.* (2000), Lenau and Boelskifte (2005), Lenau and Boelskifte (2004), Mahlke (2006) and Steffen (2007). Only the words in English were selected for the Initial Semantic Space.

A total number of 213 words has been found and formed the initial semantic space, which is listed in Table 4.3 below.

Table 4.3 Initial Semantic Space

Words Related to Aesthetic Information			
rubbery	proportion	sympathetic	pleasant
unpleasant	symmetry	unsympathetic	unity
attractive	color	motivating	hard
unattractive	prototypicality	discouraging	metallic
beautiful	novelty	desirable	complicated
appealing	dark	undesirable	reflective
synthetic	rejecting	transparent	large
compact	coarse	delicate	flat
inert	rectangular	rounded	sharp-edged
heavy	angular	soft	geometric
simple	strong line	hand-made	good
aerodynamic	long	strong	skinny
glossy	matte	smooth	static
rigid	light	rough	low
organic	sweet	plain	natural
symmetrical	translucent	stylish	bold
mass-produced	decorated	artificial	ornamental
opaque	slippery	fragile	sensational

Table 4.3 (continued)

Words Related to Symbolic Information			
costly	impressive	dynamic	trendy
elegant	nondescript	masculine	inviting
exciting	original	feminine	obtuse
futuristic	ordinary	modern	rational
exclusive	innovative	traditional	mature
standard (common)	conservative	outstanding	classic
weak	childish	formal	passive
active	unoriginal	creative	informal
obedient	rebellious	clever	youthful
emotional	luxurious	restrained	humorous
brilliant	aggressive	cheap	expensive
historic	cozy	silly	friendly
minimal	sexy	cute	vulgar
relaxing	conventional	smart	popular
old fashioned	timeless	gorgeous	inconsistent
nostalgic	imitative	calm	excited
truthful	exaggerated	boring	monotonous
serious	high-tech	dull	consistent
robust	extravagant	with character	interesting
temporary	daily	urban	happy
frightening	anonymous	sophisticated	

Words Related to Functional Information			
fits and finishes	color application	durable	breathable
reliable	features	unsteady	practical
solid	steady	functional	performing high
personal	professional	permanent	for walking
performing low	quite	flexible	stable
technical	good finishing	fresh	saleable
ecological	hot	wearable	communication of the functions
good fitting			

Words Related to Ergonomic Information			
ease of operating	supporting	trustworthy	comfortable
weight	obstructing	shady	clear
stability	ease of use	controllable	strange
useful	complex	uncontrollable	ergonomic
unpredictable	predictable	familiar	safe
cushioned	confusing	non-slipping	uncomfortable
orthopedic	comprehensible	incomprehensible	clumsy
usability of form elements			

4.4.2 Reduction of the Semantic Space for Washing Machine

In the second phase, the collected 213 words and expressions were reduced to a smaller set to avoid loss of reliability due to irrelevant keywords collected from the literature and to choose the most relevant words and expressions which would define the possible correlations during the interaction between the consumer and the product; washing machine. This was done through a workshop with seven professional designers (6 industrial designers and 1 graphic designer) working Arçelik A.Ş.

Figure 4.13 A screenshot of the workshop

In this workshop, The list of "Initial Semantic Space" were presented to the designers, and the words and expressions were discussed and rated in terms of their relevance to the washing machine in particular, and white goods in general.

The criteria followed to reduce the words are as follows:

- Selecting most common adjectives and the words related to the aesthetic, symbolic, functional and ergonomic aspects of product appearance.
- Excluding adjectives related to a very specific type of product (i.e., shoes, textiles, furniture etc.).
- Eliminating antonyms and expressions indicating purpose.

The Initial Semantic Space was developed with expressions in English, but the default language of the workshop was Turkish. The workshop took one day and the list was reduced to 91 words, most of which being adjective pairs (see Table 4.4). The list is named as "Reduced Semantic Space".

Table 4.4 Reduced Semantic Space

Words Related to Aesthetic Information			
pleasant	inviting	sympathatic	unity
unpleasant	rejecting	unsympathatic	proportion
attractive	attractive	motivating	symmetry
beautiful	unattractive	discouraging	light
appealing	desirable	color	novelty
occupying smaller area	undesirable	exciting	sensational

Words Related to Symbolic Information			
elegant	impressive	dynamic	trendy
elegant	nondescript	modern	expensive
futuristic	original	interesting	cheap
exclusive	ordinary	boring	masculine
standard (common)	innovative	traditional	feminine
aggressive	conservative	outstanding	

Words Related to Functional Information			
good finishing	color application	durable	ecological
good fitting	features	functional	quite
reliable	steady	practical	personal
solid	professional	performing high	performing low
communication of the functions	robust	sound quality	volume
	loading capacity		

Words Related to Ergonomic Information			
ease of operating	supporting	trustworthy	comfortable
ease of use	obstructing	shady	uncomfortable
stability	simple	controllable	safe
predictible	complex	uncontrollable	comprehensible
unpredictible	clear	familiar	incomprehensible
usability of form elements	confusing	strange	

4.4.3 The Structure of the Questionnaire

The questionnaire design was based on the cognitive process of the consumers. As revealed in the literature review of this study, the cognitive process is assumed to start with paying attention to a stimulus (which is the product samples in this field study), and continues with developing cognitive responses to the stimuli through the senses.

Figure 4.14 reveals the framework of the questionnaire. The questionnaire consisted of four sections. In the first section attention drawing ability of the product samples is examined.

The next section aims to analyze the aesthetic and symbolic information communicated through the appearance. Since the aesthetic and symbolic information is mostly related to the sense of "vision", the participants were not allowed to touch the products during this section. Instead, it was stated that they were expected to evaluate the products in terms of their visual aspects. This step also reflects consumers' perception of "search attributes" of the products.

In the third section, the questionnaire continues with a throughout examination of the products (i.e., experiencing the products), which was also referred as "experience attributes" in the literature review. During this phase the participants were requested to examine the products by touching them, using their parts etc., which invited other senses like "touch" and "hear" into the process.

The final stage is the consumers' overall evaluations and perceptions of the appearance and the quality of the products, which was defined as a higher level of abstraction in previous chapters (see Figure 4.14). The questionnaire can be found in Appendix A and Appendix B.

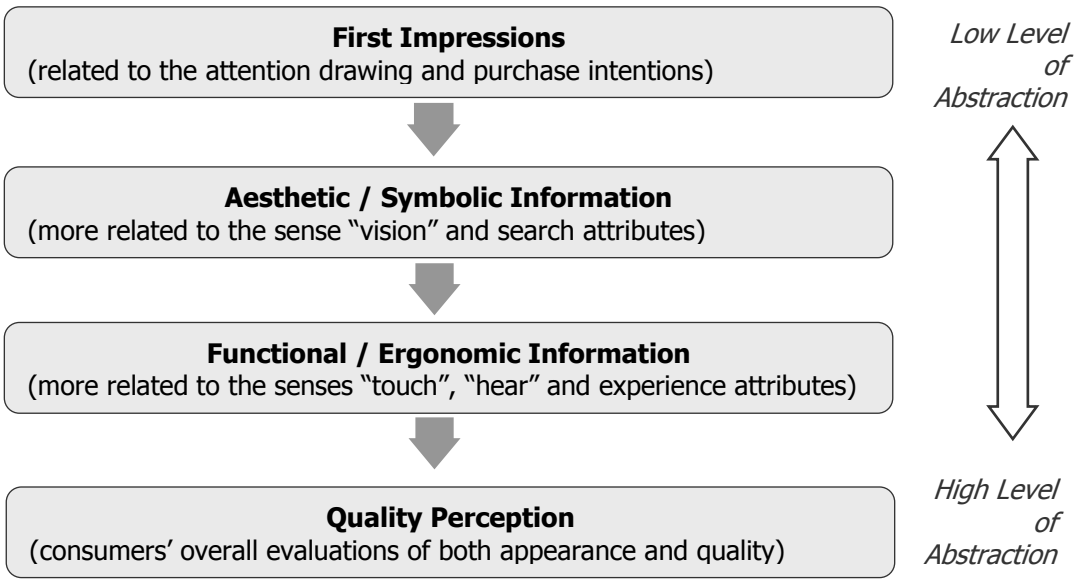

Figure 4.14 The structure of the questionnaire

Each section contains questions which include the words and expressions from the reduced semantic space explained previously. 90% of the questions are "ranking order" type of questions, in which the participants are requested to rank the three products in the order of

their preferences. The second and forth sections also contain open-ended questions which aim to investigate the reasons behind the relationship with the product appearance.

The final section of the questionnaire contains questions related to the demographic information of the participants. The data collected in this section includes age, gender, marital status, number of children, educational background, employment and socio-economic status of the participants.

4.5 Procedure

Because of the large number of interviews, three interviewers were used (one of them performed about two-third of the total number of interviews). The interviewers accompanied the subjects during the whole interview, and filled the answers of the participants in the question form.

Each interview was conducted with only one respondent at a time. First, the demographic data of the respondent including name and surname, contact information, gender, age, marital status, education level and job information was recorded in the question form by the interviewer. After this the interviewer requested the participant to examine the three products without touching or opening the related parts. After this, she asked the participant the questions in the first section of the questionnaire to seize their first impressions about the product. Then, the interviewer asked questions related to aesthetic and symbolic information presented in the second section, and the participant ranked each question in order of preference. Finishing the first and second parts, the interviewer again requested the participant to examine the three products, but this time by touching them, pressing their buttons, opening and closing their parts (also paying attention to the sounds they hear and the textures and materials they feel). After this second examination, the interviewer asked the participant the questions related to functional and ergonomic values. The participant was also allowed to reexamine the products, if required. Completing the questions in section three of the questionnaire, the interviewer summarized the previous parts, what she asked and what the participant answered. Then she requested the participant to evaluate the three products thoroughly and rank the questions about the quality of the three products regarding his/her impressions in the previous sections. The final comments of the participant about his/her perception of quality were recorded and the interview was completed. The total procedure of each interview took about 15 minutes, after which each subject received a written acknowledgement for participating in the study and a small monetary compensation. The whole study took 5 days.

4.6 Analysis of the Data

The results of the field study are revealed regarding the four aspects of information communicated through the appearance of washing machines and their influence on the quality perception based on numerical analyses. Two tasks have been defined throughout the analysis:

- Assessment of the responses to the ranking-order questions
- Classification of the respondent's comments on the open-ended questions

The primary task in the analysis was to calculate the respondents' ratings to the expressions defining the four dimensions of the product appearance (i.e., aesthetic information, symbolic information, functional information and ergonomic information). Since the respondents ranked their preferences of the three product samples for the expressions in the questionnaire, there emerged 100 preference sets of rankings for each expression. As the first, the second and the last choices in a ranking would be different in weight on the preferences of the respondent; the best choices were multiplied by 3 (three), the second choices were multiplied by 2 (two), and the last choices were multiplied by 1 (one). The sum of these multiplications formed the preference weight for a product sample in an expression, which is referred as "Index Score" throughout this study.

For example, the rankings of the respondents to the first question in the questionnaire ("*Which of these products would draw your attention if you saw them in the store? Could you rank them?")* are as follows:

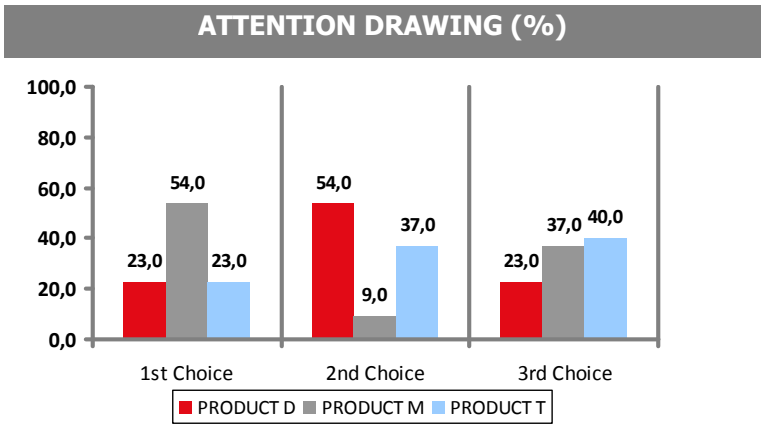

Figure 4.15 The participants' preference rankings of the three products for "Attention Drawing"

According to the Figure 4.15,

- 23 respondents ranked Product D as their first choices, 54 respondents as their second choices and 23 respondents as their third choices.
- 54 respondents ranked Product M as their first choices, 9 respondents as their second choices and 37 respondents as their third choices.
- 23 respondents ranked Product T as their first choices, 37 respondents as their second choices and 40 respondents as their third choices.

Therefore, the index score of the expression "Attention Drawing" is:

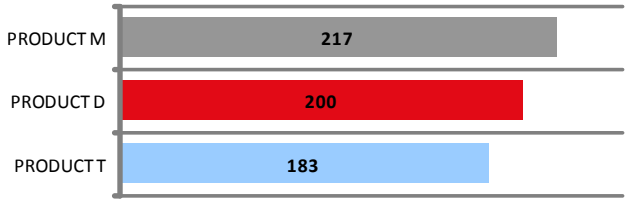

Figure 4.16 Index Score of "Attention Drawing"

The secondary task in the analysis was to categorize the answers to the open-end questions asking the color preference, the purchase intentions and quality perception of the respondents. Each comment mentioned by the respondents had been recorded to the questionnaire. Then, these annotations and comments were converted to expressions and categorized according to the four aspects of the appearance. There are a total amount of 284 expressions related to quality perception, 143 expressions related to color preference and 369 expressions related to purchase intentions. The list of these expressions together with the number of mentions for each product samples can be found in Appendix C.

4.7 Results and Discussions

The sub-sections of this section reveal the relative significance of each aspect of product appearance on the consumers' product evaluations and quality perception.

4.7.1 Respondents' First Impressions

Attention Drawing

As revealed in the literature survey, the attention drawing attribute of the appearance is related with novelty in the design and influences subjective aesthetic judgments of the consumers. Similarly, the results of the first question in the questionnaire which questions

the attention drawing ability of the products clearly shows that Product M has drawn the immediate attention of 54 respondents and regarded as the most novel product with the highest index score (see Figure 4.17).

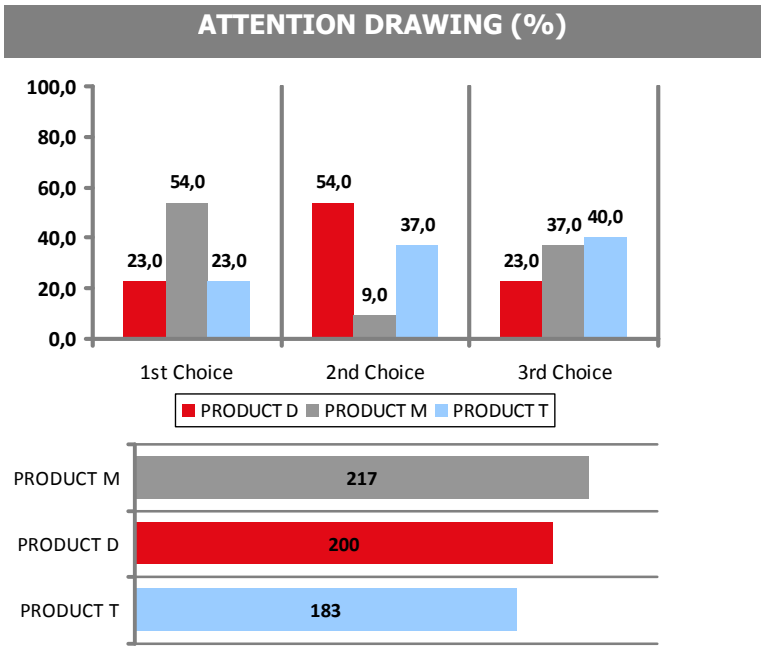

Figure 4.17 The results of "Attention Drawing"

Initial Purchase Intentions

The results of the second question reveal that although Product M was regarded as an eye-catching product, the initial purchase intentions are quite the contrary. 65 of the respondents stated that Product M would be the last machine they would like to buy within the three samples (see Figure 4.18). Instead, the respondents have mostly chosen Product D and Product T as the washing machine they would like to possess. 41 of the respondents favoured Product D and 39 of the respondents, Product T as their first choice.

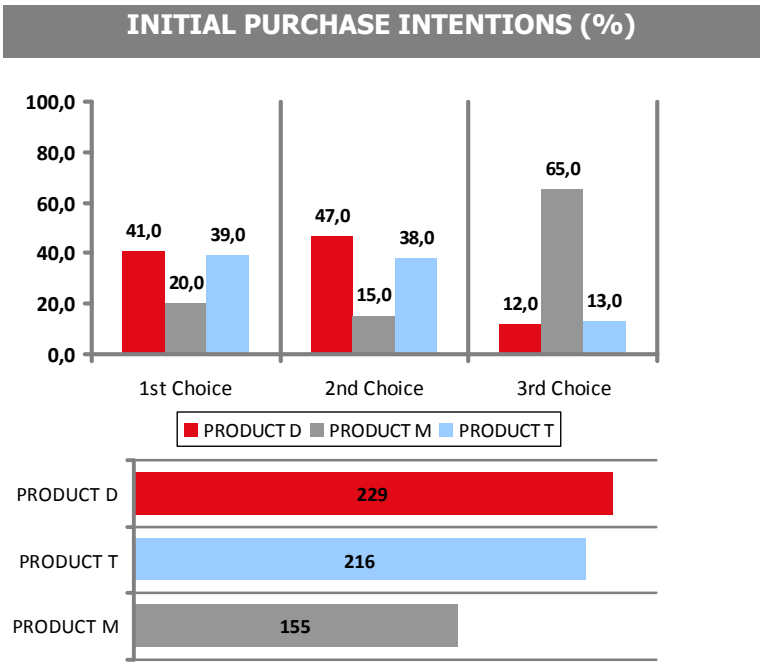

Figure 4.18 The results of "Initial Purchase Intentions"

One of the main reasons behind the difference between respondents choices for the attention drawing and the purchase intentions could be the influence of categorization on the appearance. During the interviews it is observed that 34 of the respondents showed difficulties in categorizing Product M as a washing machine, and 21 of them supposed that Product M were a tumble dryer, whereas the other 13 respondents stated that it could be an industrial type of washing machine, since there is no glass in the door. Product T, on the other hand, was regarded as having a very typical appearance and also very similar to the existing washing machines. As revealed in Chapter 3.4.1, categorization is defined as a moderating influence on the evaluation of the appearance.

4.7.2 Aesthetic Information and Quality Perception

Having Beautiful Appearance

The results of the expression "having beautiful appearance", which questions the evaluation of "beauty" in the products; show that first choice of the respondents are very close for the three product samples. As it can be seen in Figure 4.19; 41, 34 and 25 respondents favored Product D, Product T and Product M, respectively; as their first choice of having beautiful appearance. However considering the index scores of the three products, it can be found that Product M was mostly preferred as the third product since 59 respondents considered

Product M as the third product in comparison to the other two washing machines (see Figure 4.19).

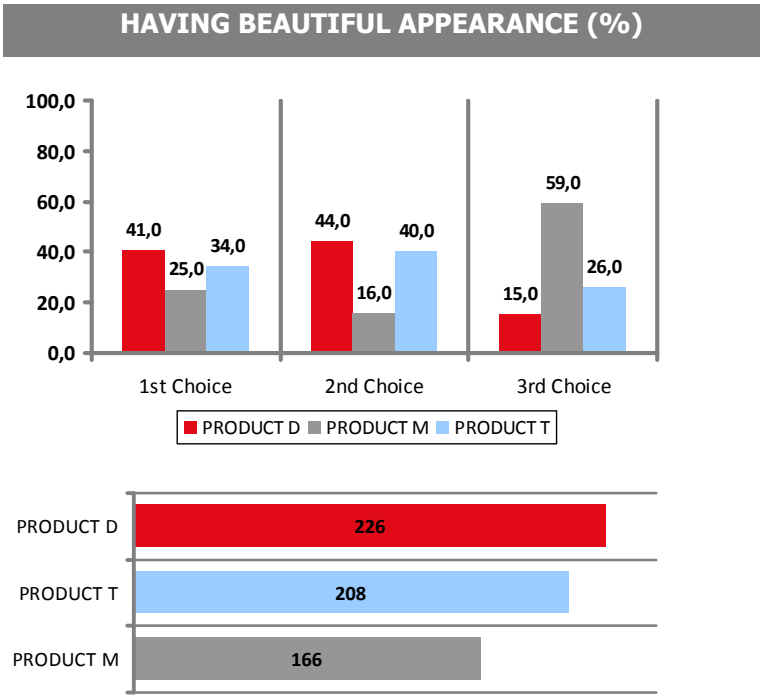

Figure 4.19 The results of "Having Beautiful Appearance"

The results of the evaluations of "beauty" may be interpreted as the fact that Product M lacks in communicating the information "beauty" to the consumers. As Coates explains in Figure 3.9, since the subjective information of the novelty in the appearance outweighs the concinnity, the respondents find Product M confusing as a washing machine, which influences their choices. However, since Product D and T are more typical and usual than Product M, the aesthetic information they communicate is located in a more balanced position in the concinnity and information diagram offered by Coates and thus they are regarded as having more beautiful aesthetic values.

Being Sensational and Being Attractive

Regarding the results of "being sensational" and "being attractive", Product M was stated as having the most sensational and attractive appearance among the three product samples with 56 and 51 "1st choice" ratings. 26 and 29 respondents chose Product D as the most sensational and attractive product. Finally, 18 and 20 respondents stated that Product T was the most sensational and attractive washing machine among the three samples (see Figure 4.20 and 4.21).

The results that Product M was evaluated as as both "attractive" and "sensational" may lead to argue that while consumers is influenced by the eye-catching and atypical aesthetic appearance and find it sensational and attractive, they don't regard the product as beautiful. Because the expressions "attractive", "sensational" and "beautiful" create different emotional responses, each of which may lead to different behavioural responses, either approaching to or avoiding from the product.

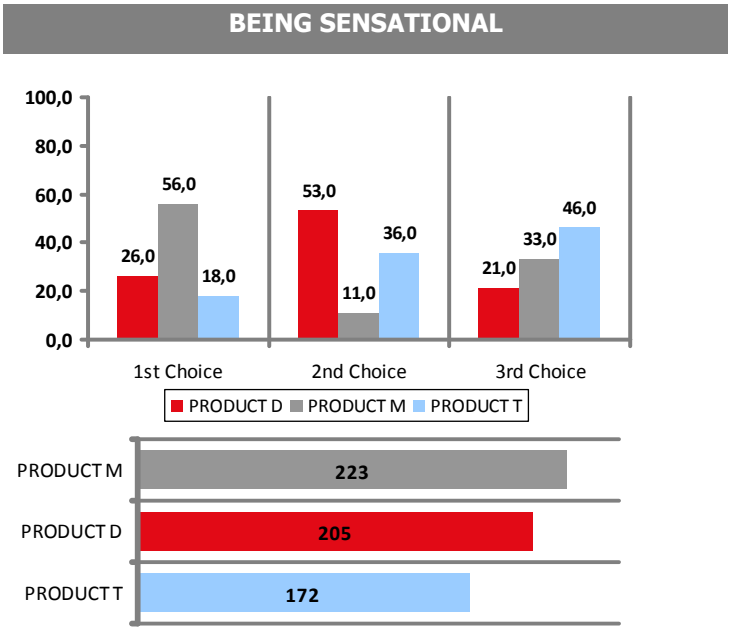

Figure 4.20 The results of "Being Sensational"

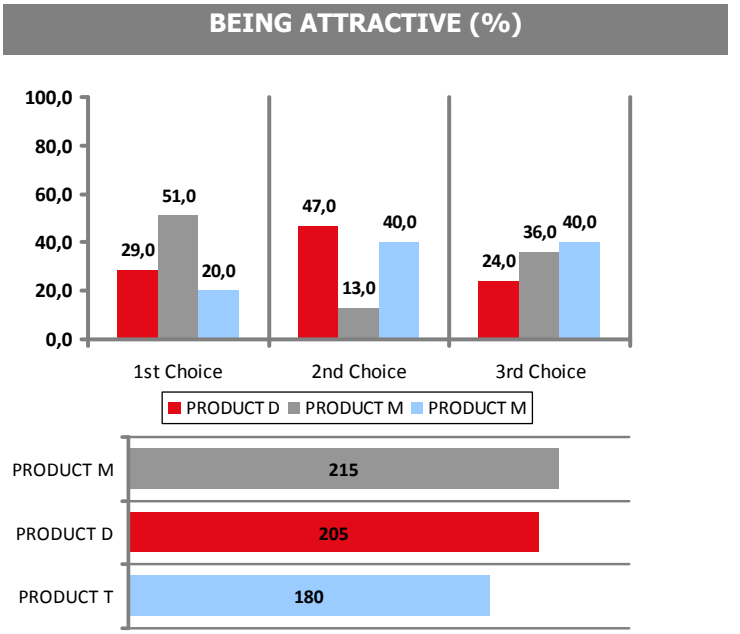

Figure 4.21 The results of "Being Attractive"

Color

The color of the machines was also found as an influencing factor communicated through the appearance. Regarding the comments on the color of the machines, it can be argued that machines with single and glossy colors are mostly preferred. The harmony between different colors (i.e. the harmony in the grey part inside the control panel of Product D), and the visual quality of the color application are the most mentioned topics in the consumers' color evaluations. Table 4.5 reveals the most mentioned comments on the colors of the products.

Table 4.5 Most mentioned comments on the colors of the products

		PRODUCTS		
Issues mentioned by the respondents	**Total**	**D**	**M**	**T**
Having a single color	27	-	-	27
Glossy painting	26	5	2	19
The color of th grey plastic part in the control panel	17	17	-	-
Harmony in the grey/white parts	12	10	2	-
The color value of the white	10	8	2	-
The color of the grey door	9	-	9	-

Perception of Volume and Weight

Both Product D and Product M have similar rankings in the expressions "lightweight" and "occupying small area" (see Figure 4.22 and 4.23). For the expression "lightweight", the index scores of Product M and Product D are 231 and 211, respectively; and the index score of Product T is 158.

For the expression "occupying small area", similarly, index scores of Product M and Product D are 229 and 227, respectively; and the index score of Product T is 144. The large gap between the first two products (Product D and M) and the last product (Product T) indicates that most of the respondents preferred Product M and Product D as their first and second choice.

As a result, it can be argued that aesthetic information also influences the perception of volume and weight of a product. Nonetheless, the validation of this argument requires further research.

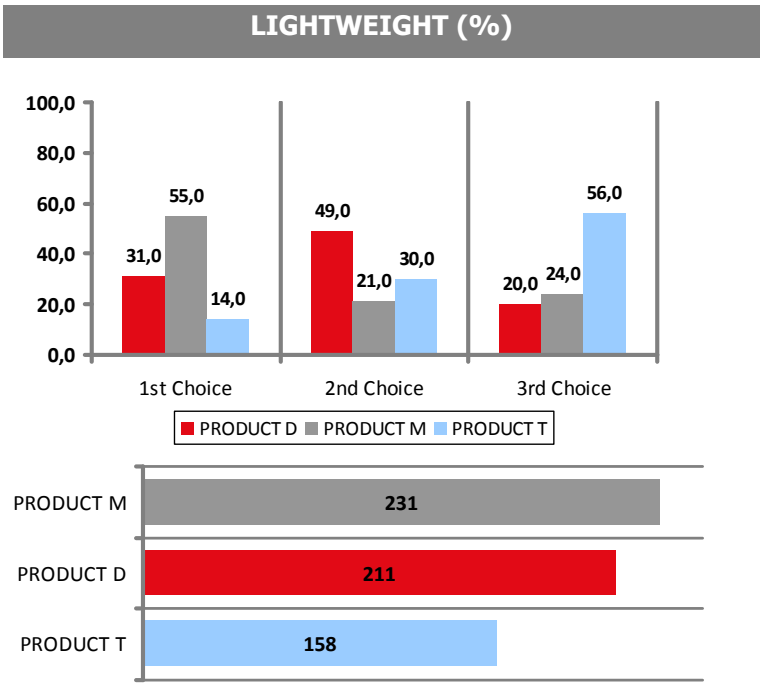

Figure 4.22 The results of "Lightweight"

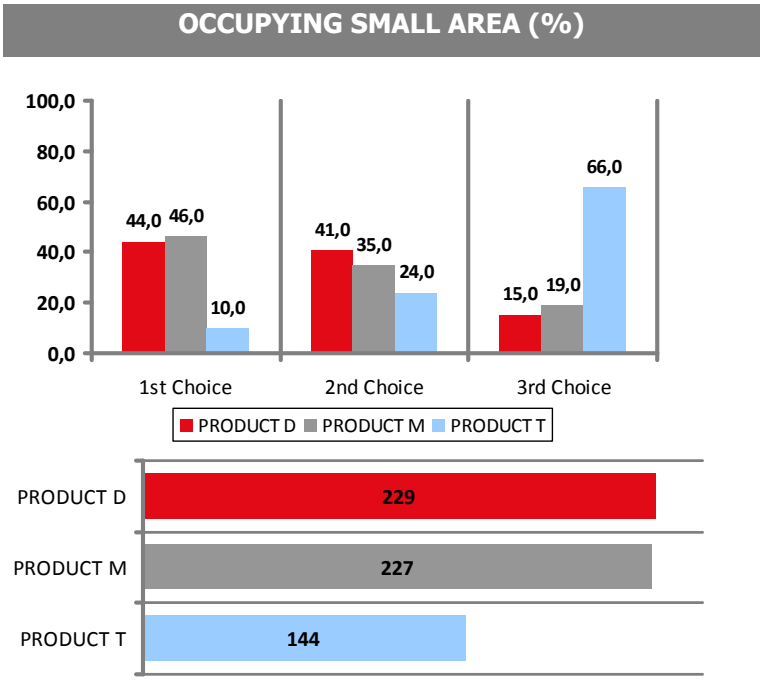

Figure 4.23 The results of "Occupying Small Area"

Influence on Quality Perception

The results of comments on the respondents' quality perception to the three product samples show that aesthetic information is one of the issues that consumers depend on judging the quality of the products. 89 comments over 284 total comments have been found to be related with aesthetic information communicated through the appearance. The most mentioned aesthetic information that consumers regard on quality evaluations is the overall visual appeal of the product. Besides, the appearance of the visual parts such as buttons, knobs, door, control panel was also observed to be mentioned by the consumers during their quality evaluations. Color is also another issue that the consumers rely on when judging about the quality of the products. There are totally 18 comments on the quality of the colors of the parts over 89 total comments of aesthetic information. Table 4.6 represents the comments on quality perception related to Aesthetic Information.

Table 4.6 Comments on quality perception related to Aesthetic Information

		PRODUCTS		
Issues mentioned by the respondents	**Total**	**D**	**M**	**T**
Visual appeal	29	12	6	11
Pure and clean appearance	9	-	3	6
Having a distinctive appearance	9	-	9	-
Being attractive	7	1	3	3
The color of the products	7	2	1	4
The aesthetic appearance of the buttons	4	3	-	1
The aesthetic appearance of the door	4	1	3	-
Grey plastic part in the control panel	3	3	-	-
Occupying small area	3	2	-	1
The aesthetic appearance of the control panel	3	3	-	-
Having glossy paint	3	2	-	1
Being completely white	2	-	-	2
Having flat backside	2	1	1	-
Newly designed control panel	1	1	-	-
Having two colors	1	1	-	-
Giving the feeling of metal front door	1	-	1	-
The harmony of grey/white parts	1	1	-	-

4.7.3 Symbolic Information and Quality Perception

Being Innovative

According to the results, 76 of the respondents stated that they prefer Product M as the most innovative product, while 58 of the respondents were chosen Product T as the least innovative one (see Figure 4.24). All the 76 respondents stated they found the design approach to the parts of Product M (i.e., the detergent container located inside the door or the simple control panel with five buttons to operate) as distinctive and innovative.

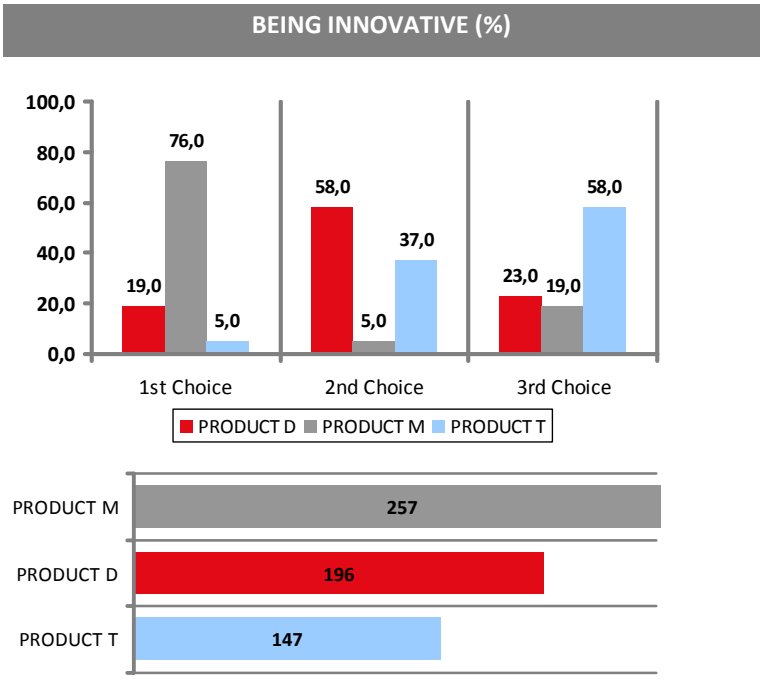

Figure 4.24 The results of "Being Innovative"

Being Expensive

Similarly, Product M was assumed to be the most expensive sample. 59 of the respondents supposed that Product M much more expensive than the other two products. Considering the index scores of the products, Product D is also supposed to be an expensive product and Product T, which is also considered as the most ordinary product, has been found the least expensive one (see Figure 4.25).

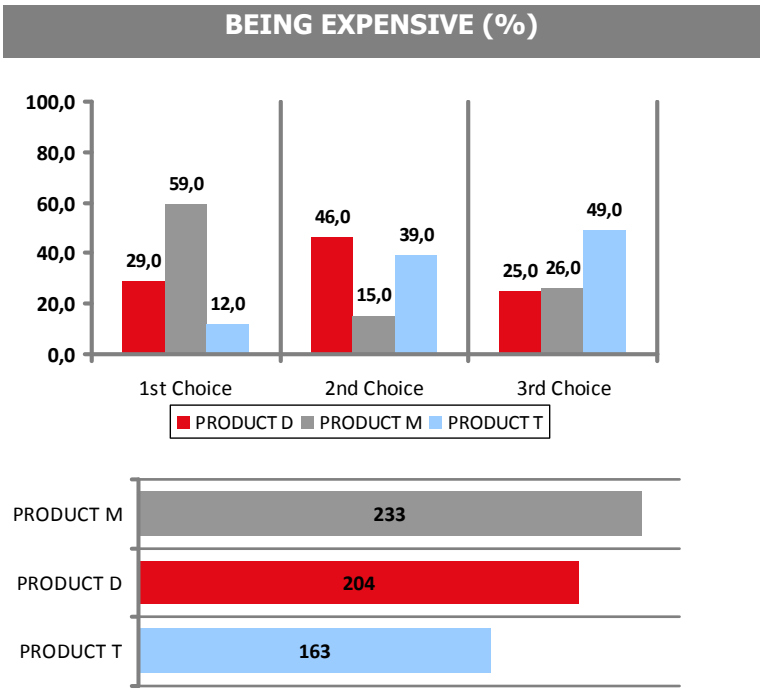

Figure 4.25 The results of "Being Expensive"

It is also significant that 53 of the respondents who assumed that Product M would be an expensive product were married, whereas 6 of them were singles and/or engaged. On the other hand, for Product D, 19 of the respondents were married, and 10 of the respondents were singles and/or engaged. Finally, for Product T, 8 of the respondents were married and 4 of the respondents were singles and/or engaged.

As revealed in the previous sections of this chapter, the prices of the samples were very close to each other, varying between 900 and 1000 TL. Thus, it can be argued that perception of the price is one of the symbolic information derived from the appearance which highly influences the consumers' product evaluation.

Being Elegant

Contrary to the results obtained from the other expressions, the results of the expression "being elegant" were very close to each other. Product D was chosen as the most elegant one among the three products, by 42 respondents. 27 respondents and 31 respondents chose Product M and Product T, respectively. The most significant result is that 54 respondent chose Product M as their third choices, which may imply that Product M is regarded as the least elegant product (see Figure 4.26).

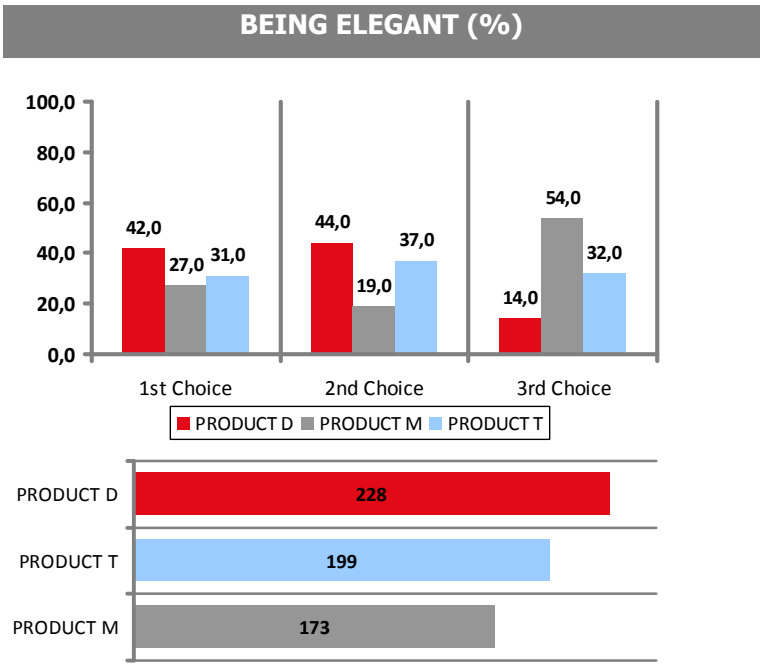

Figure 4.26 The results of "Being Elegant"

Being Technological / Futuristic

Similar results were also obtained from the expression "being technological / futuristic". Product M was regarded as the most preferred product, whereas Product D and Product T were regarded as the second and the third, respectively (See Figure 4.27).

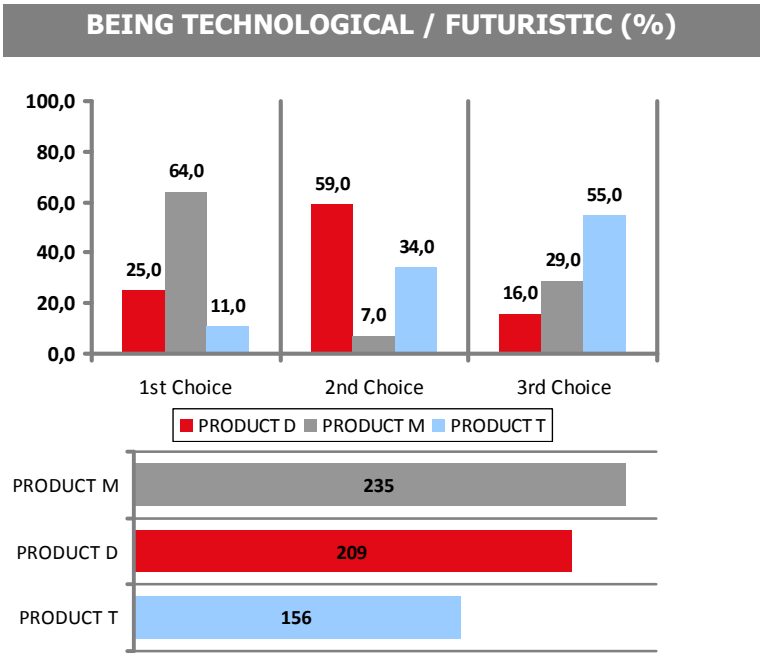

Figure 4.27 The results of "Being Technological / Futuristic"

64 respondents regarded Product M as the most technological product. 57 of the these respondents were married and the remaining 7 respondents were singles and/or engaged.

25 respondents favoured Product D as the most technological and futuristic. 15 of these respondents were married and 10 of the respondents were singles and/or engaged.

Finally, Product T, with its usual and typical appearance, was regarded as the least technological and futuristic product among three samples. 11 respondents chose Product T as the most technological and futuristic product; 8 were married and 3 were singles and/or engaged.

Being Modern

Very similar to "being technological / futuristic", 63 respondents defined Product M as the most modern-looking product; whereas 28 respondent have chosen Product D and 9 respondents have chosen Product T as the most modern products. Considering the index scores of the samples, since Product D was favoured as the second "most modern" product, the index scores of Product M and Product D is very close; however, Product T is regarded as the least modern-looking product (see Figure 4.28).

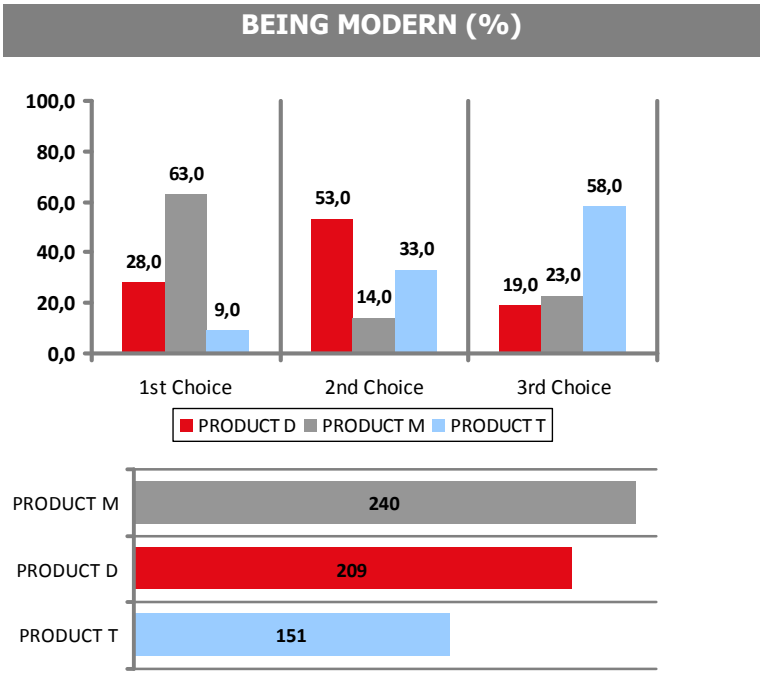

Figure 4.28 The results of "Being Modern"

Above mentioned results reveal that there are strong symbolic assocciations communicated through the appearance. Product M was regarded as the most innovative, futuristic, modern, expensive product among the three product samples, whereas Product T was regarded as an ordinary product, which may be defined as a symbolic assocciation, as well.

As revealed in 3.2.3 Communication of Symbolic Information, symbolic association is determined by what the product is seen to symbolize about its user. Consumers may be motivated to acquire and to own products mainly because they want to express a specific social role or desired status. When evaluating products, they tend to compare these products with the ones they already own. The fact that Product M was preferred mostly by the married respondent would be explained with the comparison of the Product M with their existing washing machines. Having atypical and novel appearance compared to their existing machines, Product M creates symbolic meanings such as innovative, technological, modern and even expensive for these respondents.

Influence on Quality Perception

The results of the comments on quality perception of the respondents indicate that compared to the other relationtions, the relationship between the symbolic information communicated through the appearance and the consumers' quality perception is weak. . There are 42 comments related to the symbolic associations in total, which is also listed in Table 4.7. The most influencing factors are "being technological" and "being innovative / ordinary".

Table 4.7 The comments on quality perception related to Symbolic Information

		PRODUCTS		
Issues mentioned by the respondents	**Total**	**D**	**M**	**T**
Impression of technological product	12	4	7	1
Being ordinary	10	3	-	7
Being innovative	10	2	9	-
Being elegant	3	1	-	2
Being modern	3	1	2	-
The impression of having touch control buttons	2	1	1	-
Resemblance to industrial products	1	-	1	-
Being expensive	1	-	1	-

The reason behind the weak influence of symbolic information on quality perception may be explained with the communication of symbolic values in a product. As Crilly *et al.* (2004) and Keller (1993) stated in 3.2.3 Communication of Symbolic Information, the symbolic information conveyed through the product may be less dependent on product appearance and more related to extrinsic attributes (i.e. brand name, brand image, price etc.). Since there were no clues about the brands and prices on the products, the influence of the symbolic information could have remained limited.

4.7.4 Functional Information and Quality Perception

High Performance

Although the participants of the questionnaire were not allowed to run the products, the results of the expression "high performance" reveal that Product D was regarded as performing better than the others. Nearly half of the respondents (n. 47) chose Product D as their first choice. On the other hand, 55 respondents declared Product M to be the lowest performing product (see Figure 4.29). One of the reasons observed during the interviews is related to the washing programs displayed in the control panel. Since there are only five washing programs in Product M, most respondent supposed that the performance of the product would be also lower than the others.

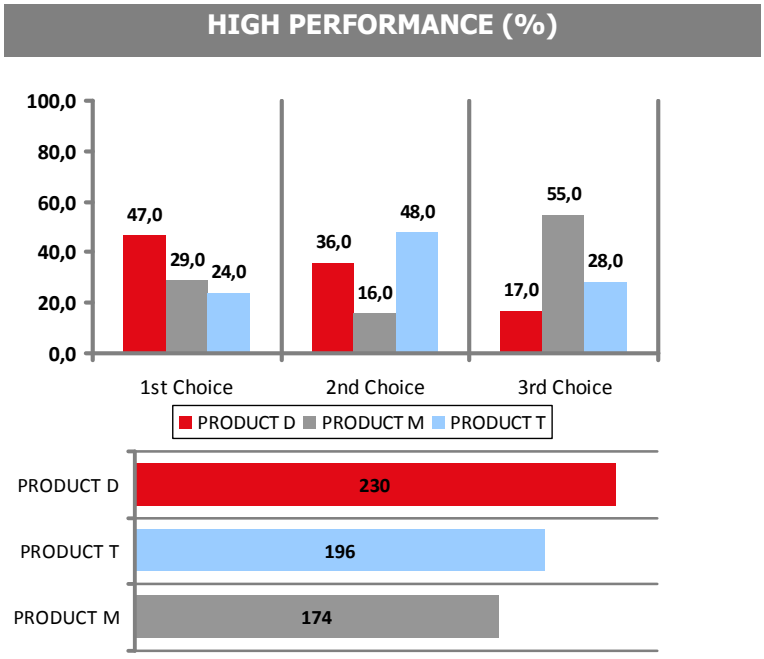

Figure 4.29 The results of "High Performance"

Having Easily Understood Features

Understanding the product specifications is an important aspect of communicating functional information to the consumers. The results of the expression "having easily understood features" reveal that Product T and Product D communicate their features better than Product M. Nearly half of the respondents (n. 55) stated that Product M informs insufficient information about its specifications (see Figure 4.30). Especially the lack of text-based descriptions on the control panel constrained the respondents from understanding the features of Product M.

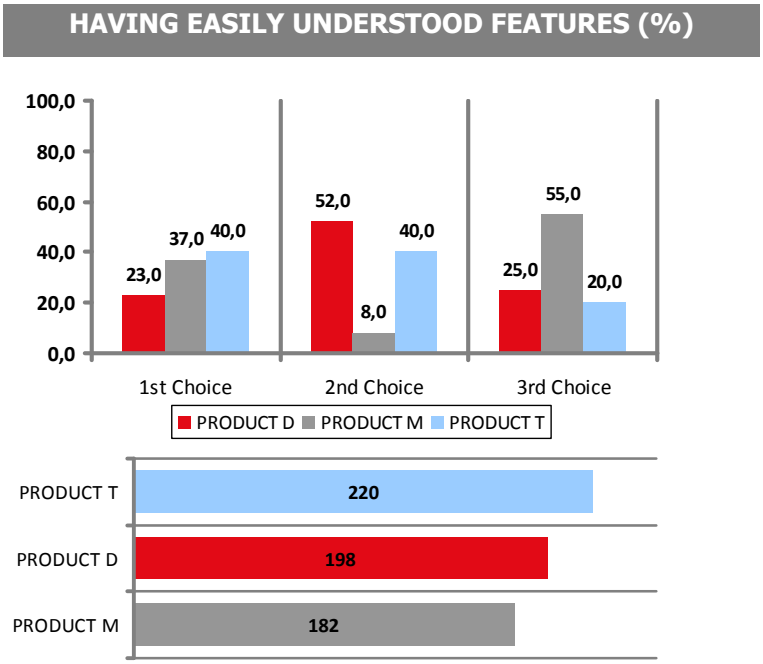

Figure 4.30 The results of "Having Easily Understood

Being Robust and Being Durable

Both "being robust" and "being durable" are those expressions which are closely related to conformance to actual manufacturing specifications and were found to be very close to each other (see Figure 4.31 and 4.32). The tables indicate that the respondents may prefer any of the three products as their first choice, but product D is mostly chosen as the second product while Product M as the third product. As durable goods, washing machines communicate information of robustness and durability via their appearance. However, revealing the slight differences between the products' durability and performance requires experiencing the products in daily usage.

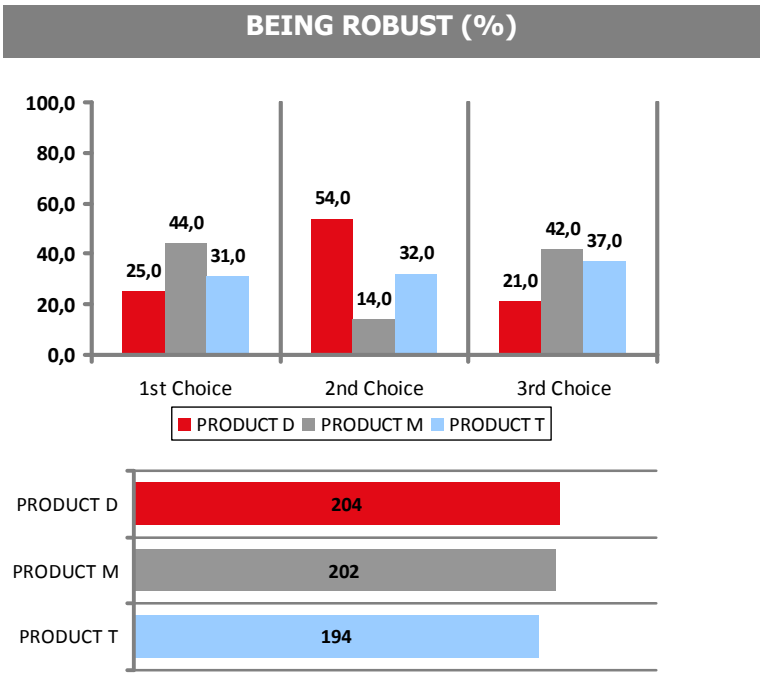

Figure 4.31 The results of "Being Robust"

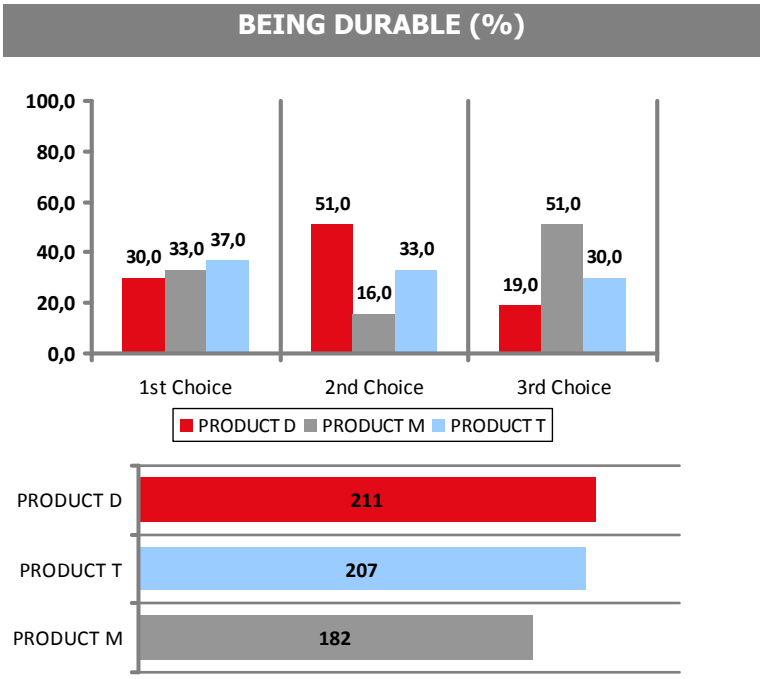

Figure 4.32 The results of "Being Durable"

Having Perfect Fits and Finishes

39 respondents have chosen Product D as the washing machine with the best fits and finishes. 34 and 27 respondents have chosen Product M and Product T, respectively. Considering the index score, since Product D is also chosen as the second product, it is preferred slightly more than the others in total (see Figure 4.33).

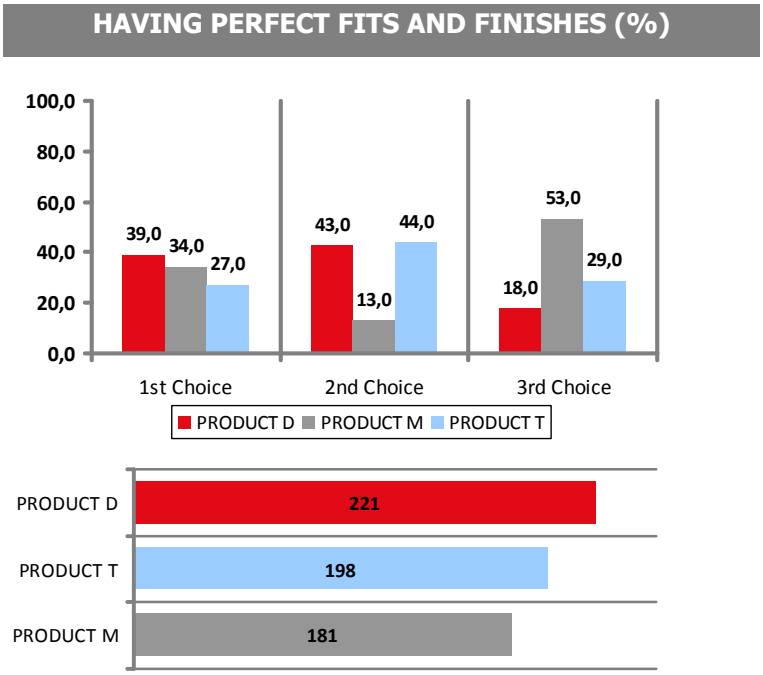

Figure 4.33 The results of "Having Perfect Fits and Finishes"

Having Firmly Seated Parts

For the feeling of the seating of the parts, 43 respondents revealed that Product M seats better than the others, while 28 and 29 respondents chose Product D and T, respectively. Product M was mostly choosen as the first choice, but according to the index score, it can be argued that all the three products created nearly the same feeling of seating their parts (see Figure 4.34).

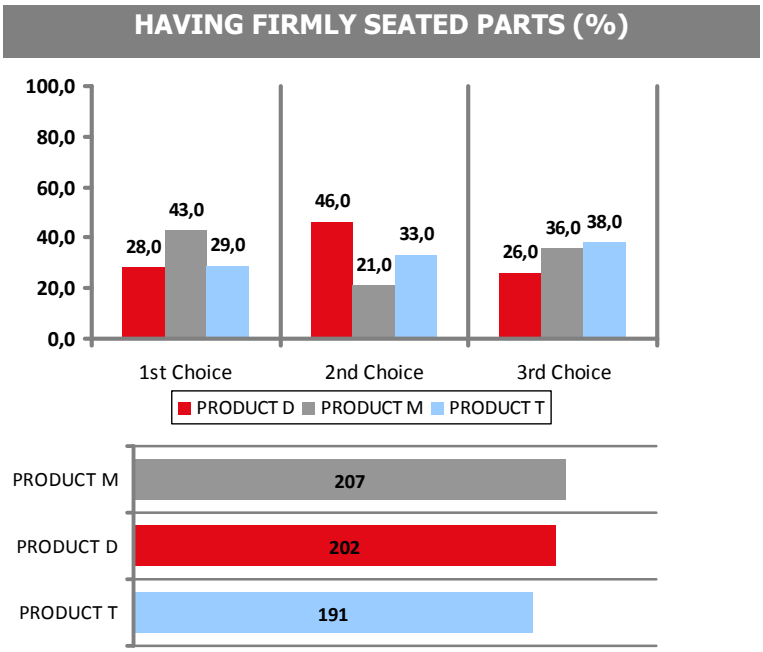

Figure 4.34 The results of "Having Firmly Seated Parts"

These two expressions; "having perfect fits and finishes" and "having firmly seated parts", are also closely related to the manufacturing standards and can be more easily observed without operating the products. According to the results of these expressions, there are no significant differences between the products' fits and finishes. The main reason behind this can be explained with the technological developments. White goods can be defined as an aggressive price market. As the technology gaps between the companies become smaller, the companies are able to produce products that are similar in terms of features, quality and cost to compete with the low price levels in the market.

Having a Nice Sound Heard When the Door is Opened/Closed and the Buttons are Pressed

Similar to "having perfect fits and finishes" and "having firmly seated parts", no significant difference was observed for the sounds of the moving parts like the buttons, the door or the detergent container. 46 respondents regarded the sound they heard from the parts of Product M better than the others. 25 and 29 respondents chose Product D and Product T as revealing nicer sound than the others. The results of the index score also show that the entire products created similar impressions on the participants for the sound of the parts (see Figure 4.35).

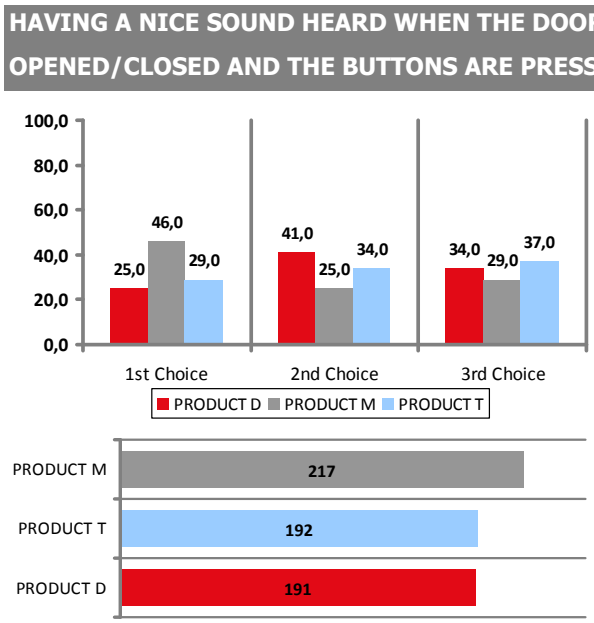

Figure 4.35 The results of "Having a Nice Sound Heard When the Door is Opened/Closed and the Buttons are Pressed"

Interior Volume / Loading Capacity

As previously stated, the loading capacity of all the three products were 6 kgs. However the results of the expression "Interior Volume / Loading Capacity" show that the respondents suppose that Product D has more interior space and loading capacity. As revealed in the index score of the three products, there is a big difference between Product T and the others. Product M and Product D were regarded as having almost the same capacity (see Figure 4.36).

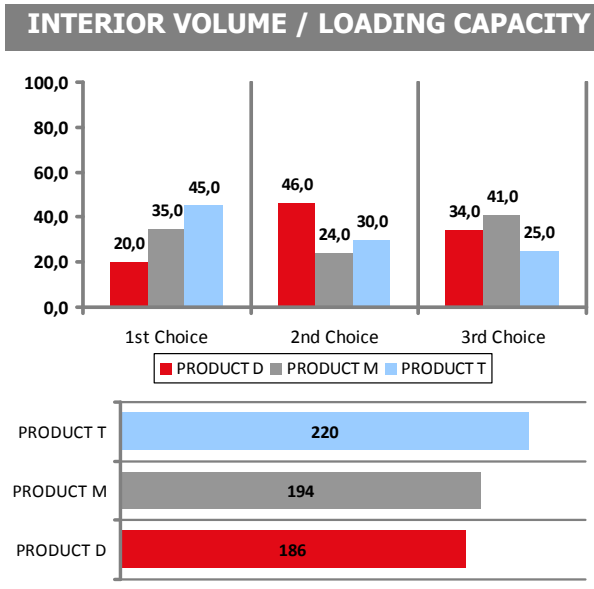

Figure 4.36 The results of "Interior Volume / Loading Capacity"

Influence on Quality Perception

Functional Information is another issue which is mostly commented on quality perception of the consumers. There are 70 comments over 284 comments related to the perceived quality of the products. The most influencing aspects of the functional information are the number of washing programs, interior volume and loading capacity, and the feeling of robustness (see Table 4.8).

Table 4.8 The comments on quality perception related to Funtional Information

		PRODUCTS		
Issues mentioned by the respondents	**Total**	**D**	**M**	**T**
The number of washing programs	19	14	-	5
Higher interior volume and loading capacity	10	5	1	4
Impression of the robustness	7	2	2	3
Being more sensitive to ecology	4	4	-	-
Impression of having more durable door structure	3	3	-	-
Impression of having more durable plastic material	3	3	-	-
Having more buttons	3	2	-	1
Having more durable buttons / knobs etc.	3	1	-	2
The sound heard when opening/closing the door	2	1	1	-
The sound heard when pressing the buttons etc.	2	2	-	-
Having more robust front door	2	-	2	-
Having more robust interior	2	1	1	-
Having more durable material in interior	2	2	-	-
Having a tumble which does not swing	1	1	-	-
Having a better paint application	1	1	-	-
Having newer functions	1	-	-	1
Having more durable control panel	1	-	-	1
Detailed controls for the cloth types	1	1	-	-

4.7.5 Ergonomic Information and Quality Perception

User-Friendly

The first expression in this section was aimed to question whether the products were regarded as user friendly. The results of this expression are shown in Figure 4.37. The most significant result in this expression is the number of people choosing Product M as their third choice. Although the control panel of Product M was consisted of five buttons, the respondents did not regard this product as user friendly. This result can be explained by Norman (1988)'s definition of Mappings. As revealed in Chapter 3.2.2 Communication of Functional and Ergonomic Information, since the simple control panel of Product M did not correspond to the mappings in consumers' mind, the respondents felt this new control system difficult to use. Similarly, since Product T was regarded as a typical product in appearance, the index scores of this expression shows that Product T has been the most preferred product in terms of usability.

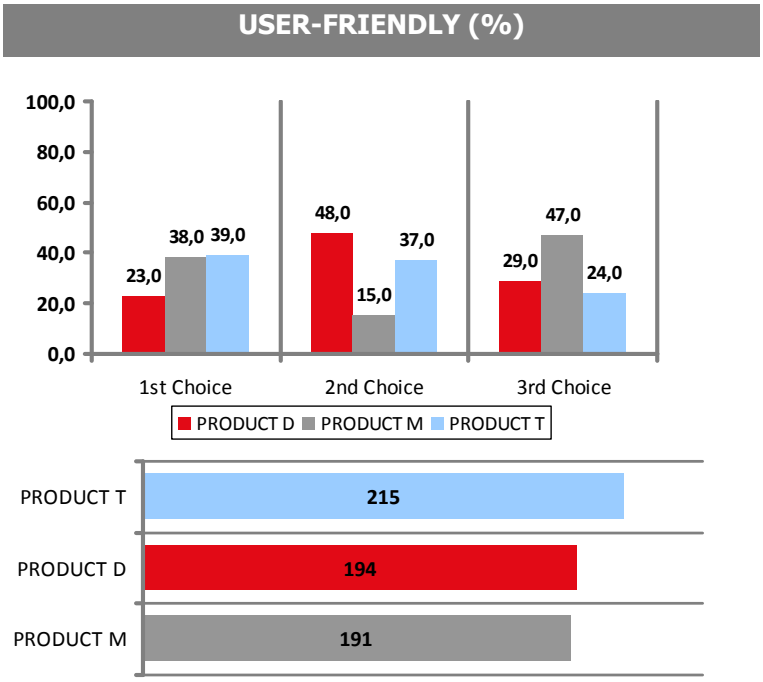

Figure 4.37 The results of "Being User Friendly"

Handy

For the expressions "handy", Product M is the first, Product T is the second and Product D is the third choice. More than half of the respondents respond positively to the control panel of Product M. 57 respondents stated that Product M is a handy product and 28 and 15

respondents indicated that they would regard Product T and D, respectively, as handy products (see Figure 4.38).

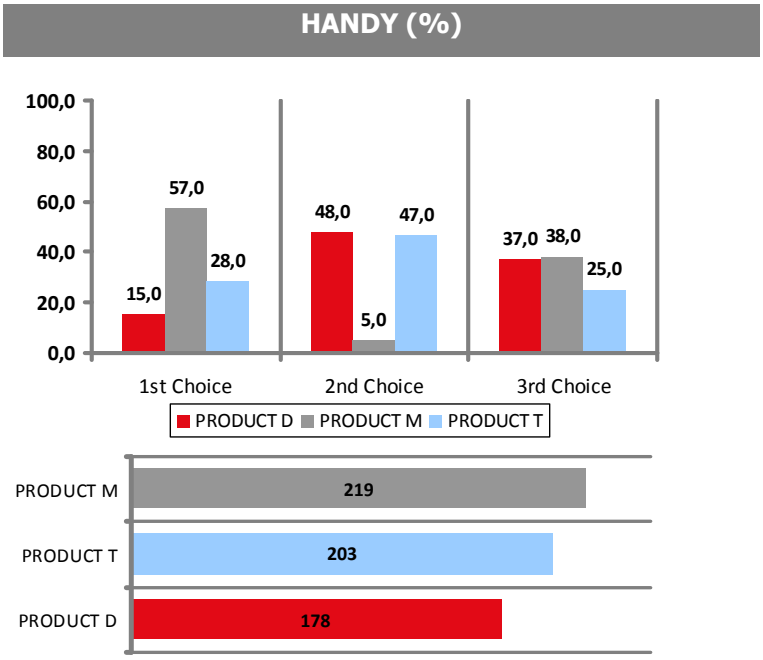

Figure 4.38 The results of "Being Handy"

Giving Easy-To-Operate Impression in the First Usage

Similar results were also obtained from the expression "giving easy-to-operate impression in the first usage". Nearly half of the respondents (n. 52) stated that they prefer Product M as the third product in this question (see Figure 4.39). Although Product M has just two steps to operate and offers easy-to-operate design feature, the control panel was regarded as complicated by most of the respondents.

Compared to the other products, respondents less regarded Product D as an easy to operate product for the first usage. Having too much buttons and LED displays on its control panel, Product D looks complicated and cretes the impression of difficult to control the interface.

The index scores of this expression shows that having a typical appearance, Product T was regarded as an easy product to operate.

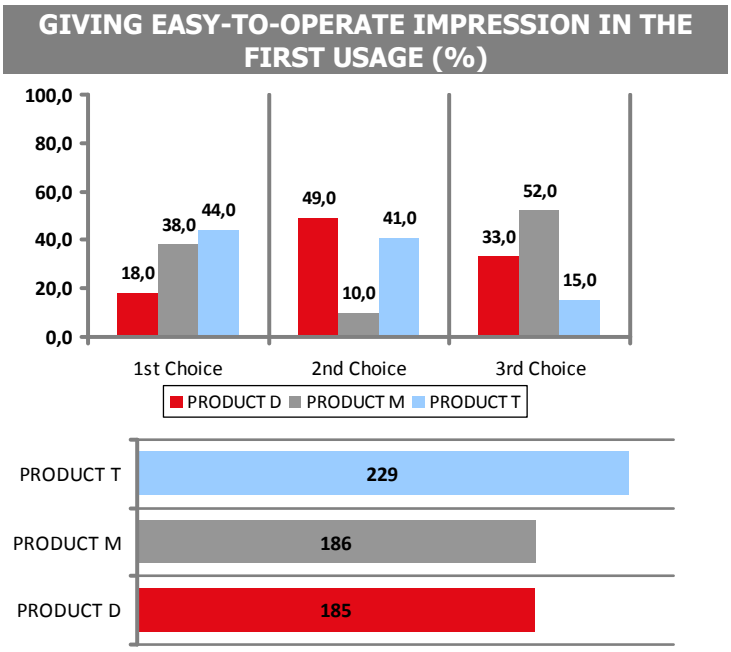

Figure 4.39 The results of "Giving Easy-To-Operate Impression In The First Usage"

Having Easy-To-Learn Operation

Contrary to easy-to-operate impression mentioned above, Product M is regarded as the easiest product to learn how to operate by 51 respondents. The second choice was mostly Product T and the most difficult product was Product D. Product D was regarded as both difficult-to-operate and difficult-to-learn due to its complicated, technological-look control panel (see Figure 4.40).

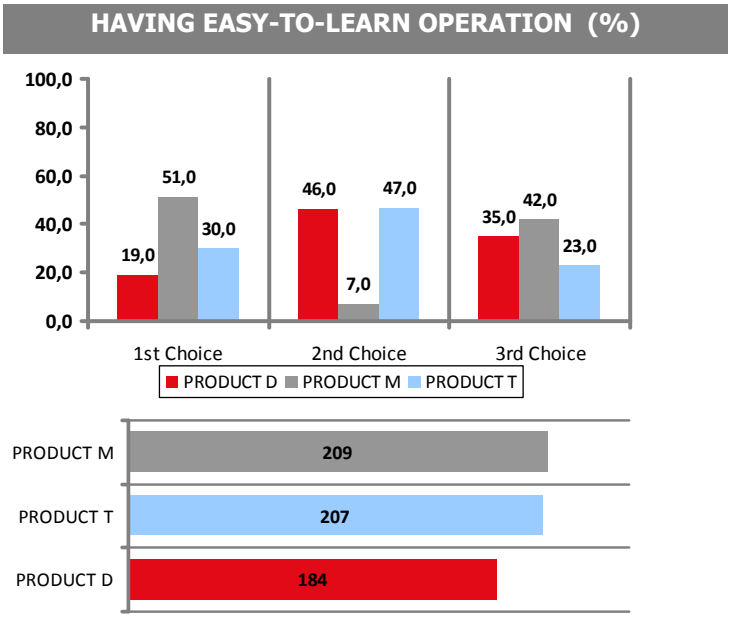

Figure 4.40 The results of "Having easy-to-learn operation"

Having Familiar Control Panel and Having Apparent Control Panel

Considering familiarity and apparentness of the control panel, Product T was regarded as having the most clear and familiar control panel because of its typical appearance by 81 respondents. Product D was seen as having a complicated control panel with a large amount of text, buttons and LED displays; whereas Product M was regarded as having an unusual control panel with unclear buttons (see Figure 4.41 and 4.42)

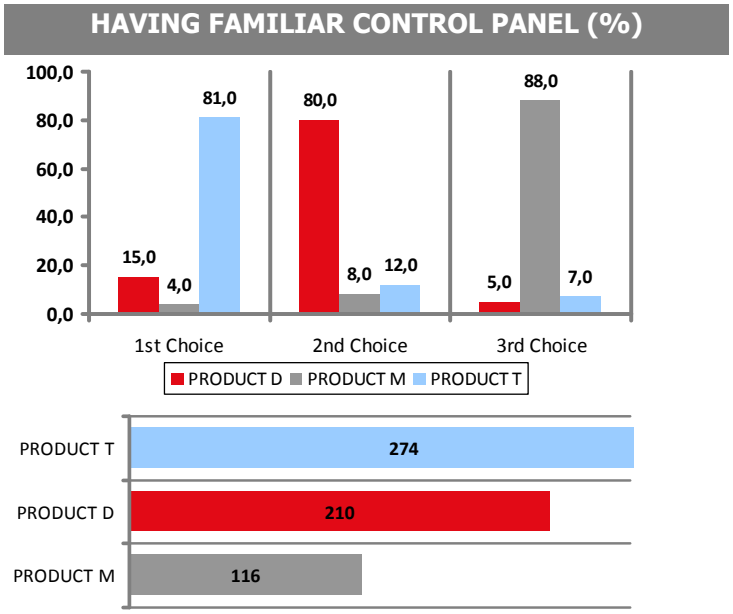

Figure 4.41 The results of "Having Familiar Control Panel"

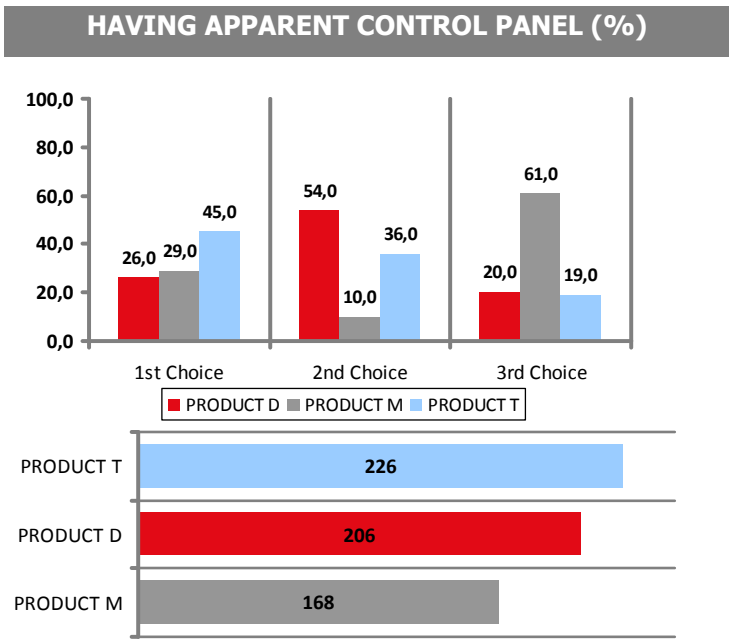

Figure 4.42 The results of "Having Apparent Control

Influence on Quality Perception

Ergonomic information communicated through product appearance is found to be another aspect influencing consumers' quality perception. There are 86 comments related to the ergonomic aspects of the products. Table 4.9 shows the most mentioned comments of the respondents to the questions related to the quality perception.

According to this, user-friendliness is the most referred aspect when mentioning the perceived quality of the products. Another important aspect is found to be usability of the parts. The ease of opening the door, practical usage of the detergent container, simply designed control panel and the button layout are also referred by the respondents.

Table 4.9 The comments on quality perception related to Ergonomic Information

		PRODUCTS		
Issues mentioned by the respondents	**Total**	**D**	**M**	**T**
Being User Friendly	18	4	4	10
Easy-to-operate door	11	3	1	7
Detergent container located inside the door	9	-	9	-
Simple and apparent control panel	7	-	5	2
Being handy	7	1	2	4
Having clear and apparent buttons	7	3	1	3
Being familiar with the existing machine	5	-	-	5
Having more handy buttons, knobs, etc.	3	-	1	2
Easy-to-load detergent container	3	2	1	-
Having digital display in the control panel	3	3	-	-
Having a descriptive control panel	2	2	-	-
Having a large detergent container	2	1	-	1
Having easy-pushing buttons	1	1	-	-
Not having a glass door	1	-	1	-
Having easy-rotating knob	1	-	-	1
Having user-friendly knob	1	-	-	1
Having follower LEDs describing the cycle process	1	1	-	-
Not having digital programme settings	1	-	-	1
Having easy-rotating tunble	1	-	-	1
User-friendly water disposal lid in the front	1	-	-	1
Having user-friendly door handle	1	-	-	1

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

In this final chapter, after a brief overview of the study, conclusions derived and insights obtained through the study will be discussed. Moreover, the limitations of the study will be stated, together with the opportunities for future studies on the subject.

5.1 Overview of the Study

The focus of this study was to investigate and analyse the influences of product appearance on the quality perception of the consumers. For this purpose, the different aspects of product appearance were to be studied and possible relationships were to be developed and demystified.

In the second chapter, the concept of product quality was explored. First, different approaches and definitions in the literature that are used to define the product quality was described:

- Transcendent approach
- Product-based approach
- Manufacturing-based approach
- User-based approach
- Value-based approach
- Garvin's product characteristics

Then, having different pros and cons, these definitions were criticized in terms of their valuation of consumers and a new definition of quality, based on the definitions existed in the field, has been proposed:

> Perceived quality is "the consumer's judgment about a product's overall excellence or superiority".

After stating the basic definition of perceived product quality, four major aspects has been identified:

- Perceived quality is different from objective or actual quality
- Perceived quality is a higher level abstraction rather than a specific attribute of a product
- Perceived quality is a global assessment that in some cases resembles attitude
- Perceived quality is a judgment usually made within a consumer's evoked set

As revealed in the definition of the perceived quality, consumers' judgements play a significant role in assessing the quality. Consumers mostly rely on product attributes to decide on their purchase intentions and product evaluations. Three categories of attributes have been decribed:

- Search attributes (include attributes which can be observed prior to purchase)
- Experience attributes (attributes which can be observed during, or after usage)
- Credence attributes (attributes which emerges after a priod of time)

Finally, intrinsic and extrinsic quality cues were defined and the role of appearance as an intrinsic cue was explained (see Figure 2.4 on p. 21).

The third chapter included another literature review which aims to investigate product appearance thoroughly. The appearance of a product was analysed and four types of information communicated through the appearance were identified:

- Aesthetic Information
- Symbolic Information
- Functional Information
- Ergonomic Information

Also in this chapter, Consumers' cognitive, emotional and behavioral responses to the appearance were examined and moderating influences to the consumers' judgements were revealed. Figure 3.16 on page 50 briefly demonstrates the consumers' responses and moderating influences to the appearance.

Eventually, in the forth chapter, the field study was conducted. The aim of the field study was to measure the influence of the four aspects of the appearance on the quality perception. A questionnaire was designed to reveal the relationship between the product appearance and perceived quality. For the questionnaire, first, statements which were believed to be related with the different types of information communicated through of appearance were collected from the previous studies in the literature. 213 collected expressions created the Initial Semantic Space and needed to be reduced in number. Thus, a preliminary workshop with the experts from white goods industry (i.e., designers working at Arçelik A.Ş.) was orginised to reduce the number of expressions. As a result, 91 expressions were decided as the representations of aesthetic, symbolic, functional and ergonomic information and formed the Reduced Semantic Space. Then, the question form was created by using the expressions from the Reduced Semantic Space.

The sampling of the participants and the stimuli of the study were decided. Washing machine was chosen as the stimuli of the study. There were two reasons:

- Washing machine is one of the most possessed household appliances. Washing machines are used in nearly 90% of households (Euromonitor 2008).

- The author of this study is currently working at Arçelik A.Ş. Thus, washing machine would be a suitable product through which the author could have the possibility to integrate his experience, expertise and insights into this study.

The questionnaire was conducted by a professional consumer research company, 7P Think Tank Group with guidance of the author. In accordance with the literature review established in Chapter 2 and Chapter 3, positive correlation between the product appearance and quality perception has been observed.

5.2 Conclusions

The aim of the study was to clarify the relationship between product appearance and perceived product quality through the context of the consumer products.

Thus, the main research question was:

- How does product appearance influence consumers' quality perception for consumer goods?

Considering the literature review and the field study conducted, it can be concluded that the appearance influences quality perception in various stages of consumer/product context for consumer goods, which is explained below:

As explained in Chapter 2.3 of the literature review, perceived quality is defined as a high level of abstraction. *Level of abstraction* refers to the many levels in the memory in which product information is retained. The simplest level is a product's attributes, which consist of the aesthetic, symbolic, functional and ergonomic information. The information in the lower levels of the memory transfered to the higher levels so long as the consumer involves in the product. In the field study, in order to observe the influence of consumers' involvement on the evaluation of the product; two similar questions related the purchase intentions of the consumers were asked both at the beginning and in the end of the questionnaire. The results show that 37 respondents did not change their purchase decisions at the end of the questionnaire. However, 63 respondent changed the product they would have bought. 32 of these 65 respondents chose the same product with the one they regard as high qality. Thus, product appearance is one of the core values which influences consumers' quality peerception and purchase decisions of the products.

One of the important aspects of perceived quality is that perceived quality is rational and is not directly measurable. Since quality is not a physical characteristic of an object, it cannot be directly measured by physical means. Rather, quality is an abstract and rational characteristic and requires comparison of a product attribute in relationship to something else (Zeithaml, 1988). Consumers' requirements for a comparison were also observed in the field study. During the field study, when asked for the quality of the three product samples, the respondents made their judgments by comparing the attributes of a product within itself or with the other products' attributes. Similarly, it is observed in the field study that, when consumers were asked to comment on the functional or ergonomic aspects of a product, they tend to compare it with the other products. On the other hand, when they were asked for the aesthetic and symbolic aspects, they revealed their comments by indicating that it would be their individual preferences.

Consumer goods are products where the attributes that can be assessed before purchase (search attributes) are more than those that can be assessed only consumption (experience attributes). Therefore, the quality assessment for consumer goods is a high level of cognitive judgment (see Chapter 2.3 Perceived Quality). Product appearance, similarly, is highly involved in cognitive responses and the information gained through the appearance directly affects the cognitive responses and judgments, and hence, the quality perception of the

consumers. The results of the field study also show that the product attributes that consumers have chosen in assessing the aesthetic, symbolic, functional and ergonomic aspects of the appearance were also referred as the most mentioned issues in the quality related comments. For quality comments on aesthetic information, most mentioned comments are "visual appeal", "pure and clean appearance", "distinctive appearance", "being attractive" and "color"(see Table 4.6). For quality comments on symbolic information, most mentioned comments are "being technological", "being ordinary" and "being innovative" (see Table 4.7). For quality comments on functional information, most mentioned comments are "the number of washing programs", "higher interior volume and loading capacity" and "being robust" (see Table 4.8). Finally, for quality comments on ergonomic information, most mentioned comments are "being user-friendly" and "being easy-to-operate" (see Table 4.9). All the most mentioned quality comments on the four aspects of the appearance are also same with the attributes that are asked to the respondents.. This result indicates that the evaluation of the information communicated by the appearance, which occurs in low cognitive level, influences higher levels of cognitive judgments, such as quality perception.

Product appearance is defined as one of the intrinsic cues of product quality. Previous research shows that product appearance is the third major cue, after brand name or image and price. The field study shows that when given the choice between three products, which were equal in price and function and brands of which were concealed, target consumers prefer the one they consider to be more suitable to their evoked product sets. An evoked set is the set of goods which consumers regard as potential purchase option. Thus, consumers mostly make their quality judgments within their evoked sets, which the appearance directly influence.

This study also aimed to find answers for following sub-questions:

- Which aspects of product appearance are effective in creating the judgments of quality?
- What is the role of each aspect of product appearance (i.e. aesthetic information, symbolic information, functional information and ergonomic information) on consumers' perception of quality?

Considering the aesthetic information, it can be argued that especially the visual appeal of the overall form of the product has a great influence on the quality perception. As revealed in Table 4.6 in Chapter 4.7.2, 27 respondents mentioned about the visual appeal as an important quality issue. Furthermore, "pure and clean appearance" and "having a distinctive

appearance" were both commented by 9 respondents as important aspects of quality. Similarly, both "being attractive" and "color of the products" were stated as a quality signal by 7 respondents. Since the aesthetic responses to a product are highly related to personal values and preferences, the influence of aesthetic information on quality judgments depends on personal values and preferences as well. For example, in the field study, the comments related quality of the color of the products varied within the respondents. Some respondents favored grey parts in Product D and stated that as of quality, while some others indicate that full of white products would be regarded as high quality. Although color preference is a pure aesthetic choice, it is observed that color influences the quality perception, as well.

For the symbolic information, it is observed in the field study that in the questions related to the symbolic associations, Product M was mostly referred as the preferred product. Similarly Product M was also mentioned mostly in quality related questions. 12 respondents mentioned about "being technological" in their quality comments. 10 respondents stated "being ordinary" as an essential quality aspect. Another 10 respondents, on the contrary, expressed "being innovative" as an important quality cue. On the other hand, as revealed in Chapter 3.2.3 Communication of Symbolic Information, the symbolic information conveyed through the product is less dependent on product appearance and more related to extrinsic attributes (i.e. brand name, brand image, price etc.). Similarly, since there were no clues about the brands and prices on the products displayed in the field study, the role of the symbolic information on quality remained limited. There are 42 comments related to the symbolic associations in total, which is almost half of the other three aspects of the appearance.

Functional information was also observed as highly influencing quality perception. There are 70 comments related to functional information over 234 total comments. "The number of functions" in the products was considered to be an essential aspect on the quality perception. As revealed in Table 4.8 in Chapter 4.7.4 Functional Information and Quality Perception, there are 19 quality comments about the number of washing programs. Another important aspect of the functional information is the "loading capacity". 10 respondents commented on loading capacity of the products they regards as high quality. Finally "being robst" is another attribute mentioned by 7 respondents.

Finally, regarding the ergonomic information, perceived usability of the products proved to be an important issue on quality perception. 18 respondents stated that ease-of-use would be one of the major quality issues they look for in a product. Moreover, 10 respondents mention about the front door. Another significant result is the detergent container of Product

M located inside the front door, which is also mentioned by 9 respondents. There are 86 quality comments related to the ergonomic information (see Table 4.9 in Chapter 4.7.5 Ergonomic Information and Quality Perception).

As demonstrated in the field study, aesthetic, functional and ergonomic information is observed to have strong relationship with the quality perception and found to be highly effective in judgments of the consumers. However, symbolic information communicated by the appearance has limited influence on quality perception.

Recommendations for Designers

In some cases product appearance can be misleading for consumers; designers need to be wary about the potential hazards and misunderstandings by consumers. If the consumers misconcept the role or information communicated by the appearance, they tend to regard this as low quality or deficiency in the design. In the field study, one of the information that the design of only 5-button control panel of Product M intended to convey is the ease-of-use. However, most respondents did not recognize this information and regarded Product M as low quality, assuming that the performance of Product M would be lower than the others.

One of the results for the designers, which can be derived from the field study, is the fact that the categorization and novelty were found to be a major moderating influence for both the appearance and quality. The designers should be careful about the balance between typicality and novelty of their designs. If the appearance tends to be atypical and novel, then the consumers may lack in categorizing the product into its intended category and avoid from the product, which may result in regarding it as low quality as well. Product M in the field study was regarded as so atypical that in most questions consumers ranked it as the third choice. On the other hand, if the appearance of the product is too typical, it may create emotional responses such as being dull or boring and again may cause avoidance, which, in turn, results in not considering that the quality of the product into account.

Another result for the designers is related to the trade-offs between four types of the information communicated through the appearance. In some cases, a certain aspect of the product may affect the evaluation of other aspects and result in negative judgments on the quality and product. For example, using too much LED indicators and buttons, knobs etc. in consumer goods may highlight the functionality of the product (i.e., functional information). On the other hand, it may also confuse the user and may give the impression of complicated and hard-to-operate (i.e., ergonomic information). The designers, thus, should be aware of the consequences of the trade-offs they offer during the design process.

5.3 Uniqueness of the Study and Limitations

The study of the influence of product appearance on perceived quality for consumer products is unique, as there is no other study related to this subject in the literature conducted in Turkey.

In this study, the relationship between product appearance and perceived quality is studied with washing machines. The results of this study highlight the situation of examined relationship for consumer products. However, the results on washing machines are limited to generalize for all consumer goods.

This study was conducted with people living in Turkey. The results of this study reflect the relationship between product appearance and perceived quality in Turkey only. Thus, the results of the study are limited for other countries.

Although the number of the respondents participated in the study is sufficient to minimize the influences of individual tastes and preferences, cultural and social background and personal attitudes; the author of this study acknowledges that there may still be interferences related to these moderating influences.

5.4 Recommendations for Further Studies

The first and most important limitation of this study is the influences of individual tastes and preferences, cultural and social background and personal attitudes on both prouduct appearance and quality perception. Although these moderating influences were not within the scope of this study, it is highly recommended to study their effects on either product appearance or perceived quality.

Since the field study was conducted in Turkey, it is also recommended that the the validity of the relationship between the product appearance and quality perception ought to be observed for other regions.

Consumer goods consist of a wide range of different types of products. In this study, washing machine was selected as the stimuli of the field study for certain reasons; however, similar studies should be conducted for other types of consumer goods (e.g., small home appliances and domestic electronic goods).

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APPENDIX A

QUESTIONNAIRE (ENGLISH VERSION)

WASHING MACHINE APPEARANCE & QUALITY PERCEPTION SURVEY

NAME & SURNAME OF INTERVIEWER:		**DATE OF SURVEY:**	
NAME & SURNAME OF INTERVIEWEE:		**CITY:**	
COUNTY:		**BUSINESS PHONE:**	
MOBILE:		**E-MAIL:**	
		BRAND OWNED:	

SECTION 1: FIRST IMPRESSIONS

Q.1 WHICH OF THESE PRODUCTS WOULD DRAW YOUR ATTENTION IF YOU SAW THEM IN THE STORE? COULD YOU RANK THEM?

- **CAUTION! MAKE SURE THAT YOU HAVE READ ALL CHOICES.**
- **DO NOT LEAVE ANY EMPTY FIELD.**
- **DO NOT PLACE TWO SEPARATE MACHINES ON THE SAME LINE**

	1ST PRODUCT	2ND PRODUCT	3RD PRODUCT
PRODUCT "T"			
PRODUCT "D"			
PRODUCT "M"			

Q.2 WHICH OF THE FOLLOWING PRODUCTS WOULD YOU LIKE TO SEE IN YOUR HOME? COULD YOU RANK THEM?

- **CAUTION! MAKE SURE THAT YOU HAVE READ ALL CHOICES.**
- **DO NOT LEAVE ANY EMPTY FIELD.**
- **DO NOT PLACE TWO SEPARATE MACHINES ON THE SAME LINE**

	1ST PRODUCT	2ND PRODUCT	3RD PRODUCT
PRODUCT "T"			
PRODUCT "D"			
PRODUCT "M"			

SECTION 2: AESTHETIC/SYMBOLIC INFORMATION

PARTICIPANTS SHALL ANSWER THE QUESTIONS IN THIS PART WITHOUT TOUCHING WASHING MACHINES BUT ONLY BY LOOKING AT THEM.

Q.3 I WILL READ YOU SOME CHARACTERISTICS ABOUT VISUAL APPEARANCE. COULD YOU PLEASE RANK THE WASHING MACHINES YOU SEE HERE WITH REGARD TO THEIR CONFORMITY WITH THESE CHARACTERISTICS?

- **CAUTION! FOR EACH CHARACTERISTIC, WRITE 1 FOR THE MOST APPROPRIATE MACHINE, 2 FOR THE SECOND AND 3 FOR THE LAST ONE.**
- **TWO MACHINES SHOULD NOT BE ON THE SAME LINE FOR THE SAME CHARACTERISTIC.**
- **DO NOT LEAVE ANY EMPTY FIELD.**

CHARACTERISTICS		**1ST PRODUCT**			**2ND PRODUCT**			**3RD PRODUCT**		
		PRODUCT T	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**
1	HAVING A NICE COLOR									
1A	WITH RESPECT TO COLOR, WHAT ARE THE DIFFERENT CHARACTERISTICS OF THE BRAND YOU LIKE ITS COLOR MOST?	**PLEASE WRITE**								
1B	DO YOU SEE ANY DIFFERENCE BETWEEN THE COLORS OF THE MACHINES?	**YES, THERE IS A DIFFERENCE (1) (TO THE ATTENTION OF INTERVIEWER! PLEASE CONTINUE)**			**NO, THERE IS NOT DIFFERENCE (2) (TO THE ATTENTION OF INTERVIEWER! PROCEED WITH Q2).**					

1C WHICH MACHINE'S COLOR DO YOU LIKE MOST?	**1ST PRODUCT**			**2ND PRODUCT**			**3RD PRODUCT**		
	PRODUCT T	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**

CHARACTERISTICS		**1ST PRODUCT**			**2ND PRODUCT**			**3RD PRODUCT**		
		PRODUCT T	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**
2	HAVING A NICE APPEARANCE									
3	BEING LIGHT									
4	OCCUPYING SMALL AREA									
5	BEING SENSATIONAL									
6	BEING ATTRACTIVE									

7	BEING INNOVATIVE									
8	BEING ORDINARY									
9	BEING EXPENSIVE									
10	BEING ELEGANT									
11	BEING TECHNOLOGICAL / FUTURISTIC									
12	BEING MODERN									

SECTION 3: FUNCTIONAL INFORMATION

IN THIS PART, PARTICIPANTS WILL BE ASKED TO EXAMINE THE MACHINE BY TOUCHING IT, PRESSING ITS KEYS, OPENING AND CLOSING ITS DOOR.

Q.4 I WILL READ YOU SOME CHARACTERISTICS ABOUT FUNCTIONS OF THE WASHING MACHINES. CAN YOU RANK THE WASHING MACHINES YOU HAVE EXAMINED WITH REGARD TO THEIR CONFORMITY WITH THESE CHARACTERISTICS?

- **CAUTION! FOR EACH CHARACTERISTIC, WRITE 1 FOR THE MOST APPROPRIATE MACHINE, 2 FOR THE SECOND AND 3 FOR THE LAST ONE.**
- **TWO MACHINES SHOULD NOT BE ON THE SAME LINE FOR THE SAME CHARACTERISTIC.**
- **DO NOT LEAVE ANY EMPTY FIELD.**

CHARACTERISTICS		**1ST PRODUCT**			**2ND PRODUCT**			**3RD PRODUCT**		
		PRODUCT T	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**
1	DURABLE									
2	HIGH-PERFORMANCE									
3	ROBUST									
4	HAVING EASILY UNDERSTOOD FUNCTIONS									
5	HAVING PERFECT FITS AND FINISHES									
6	HAVING FIRMLY SEATED PARTS (BUTTONS, DOOR, ETC)									
7	HAVING A NICE SOUND HEARD WHEN THE DOOR IS OPENED/CLOSED AND BUTTONS ARE PRESSED									
8	HIGH INTERIOR VOLUME / LOADING CAPACITY									

SECTION 3: ERGONOMIC INFORMATION

Q.5 I WILL READ YOU SOME CHARACTERISTICS ABOUT THE USAGE OF WASHING MACHINES. CAN YOU RANK THE WASHING MACHINES YOU HAVE EXAMINED WITH REGARD TO THEIR CONFORMITY WITH THESE CHARACTERISTICS?

- **CAUTION! FOR EACH CHARACTERISTIC, WRITE 1 FOR THE MOST APPROPRIATE MACHINE, 2 FOR THE SECOND AND 3 FOR THE LAST ONE.**
- **TWO MACHINES SHOULD NOT BE ON THE SAME LINE FOR THE SAME CHARACTERISTIC.**
- **DO NOT LEAVE ANY EMPTY FIELD.**

CHARACTERISTICS		**1ST PRODUCT**			**2ND PRODUCT**			**3RD PRODUCT**		
		PRODUCT T	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**	**PRODUCT T**	**PRODUCT D**	**PRODUCT M**
1	USER FRIENDLY									
2	HANDY									
3	HAVING FAMILIAR DISPLAY PANEL									
4	GIVING EASY-TO-OPERATE IMPRESSION IN THE FIRST USAGE									
5	HAVING EASY-TO-LEARN OPERATION									
6	HAVING APPARENT DISPLAY PANEL									

SECTION 4: FINAL EVALUATIONS

Q.6 WOULD YOU LIKE TO BUY ANY OF THESE PRODUCTS?

- **CAUTION! MAKE SURE THAT YOU HAVE READ ALL CHOICES.**
- **GET ONLY ONE ANSWER.**

YES, I WOULD		**PROCEED WITH Q.8**
NO, I WOULD NOT		**ASK Q.7 AND PROCEED WITH Q.10.**

Q.7 MAY I LEARN THE REASONS WHY YOU WOULD NOT LIKE TO BUY ANY OF THESE PRODUCTS?

- **CAUTION! DO NOT READ THE CHOICES BY NO MEANS.**
- **THERE MIGHT BE MANY ANSWERS**

I THINK THEY ARE OF POOR QUALITY (PROCEED WITH Q7A)	

I THINK THEIR FUNCTIONS ARE NOT SUFFICIENT	
I THINK THEY ARE NOT DURABLE	
I THINK THEY ARE DIFFICULT TO USE	
THEIR SIZES ARE TOO BIG	
I DID NOT LIKE THEM AESTHETICALLY	
OTHER (PLEASE SPECIFY)	

Q.7A MAY I LEARN WHY DO YOU THINK THEY ARE NOT OF GOOD QUALITY?
CAUTION! WRITE EXACTLY WHAT IS TOLD. **ASK TO THOSE FOR WHOM YOU CHECKED ITEM 2 IN Q.7.**

Q.8 WHICH OF THESE PRODUCTS WOULD YOU LIKE TO BUY?	
CAUTION! MAKE SURE THAT YOU HAVE READ ALL CHOICES. **GET ONLY ONE ANSWER.**	
PRODUCT "T"	
PRODUCT "D"	
PRODUCT "M"	

Q.9 MAY I LEARN WHY YOU WANT TO BUY THIS PRODUCT?	
CAUTION! DO NOT READ THE CHOICES BY NO MEANS. **THERE MIGHT BE MANY ANSWERS.**	
I THINK IT IS A QUALITY PRODUCT (PROCEED WITH Q9A)	
I THINK IT IS DURABLE	
SINCE IT HAS AN ATTRACTIVE VISUAL APPEARANCE	
BECAUSE IT SEEMS EASY-TO-USE	
BECAUSE I LIKE ITS DIMENSIONS	
OTHER (PLEASE SPECIFY)	

Q.9A MAY I LEARN WHY YOU THINK IT IS OF GOOD QUALITY?

- **CAUTION! WRITE EXACTLY WHAT IS TOLD.**
- **ASK TO THOSE FOR WHOM YOU CHECKED ITEM 1 IN Q.9.**

Q.10 WHICH OF THESE PRODUCTS LEFT THE IMPRESSION OF BETTER QUALITY ON YOU? COULD YOU RANK THEM?

- **CAUTION! MAKE SURE THAT YOU HAVE READ ALL CHOICES.**
- **DO NOT LEAVE ANY EMPTY FIELD.**
- **DO NOT PLACE TWO SEPARATE MACHINES ON THE SAME LINE**

	1ST PRODUCT	2ND PRODUCT	3RD PRODUCT
PRODUCT "T"			
PRODUCT "D"			
PRODUCT "M"			

Q.11B YOU STATED THAT THE PRODUCT ..... IS OF THE BEST QUALITY, COULD YOU TELL US THE REASONS WHY YOU SAY THIS PRODUCT IS OF THE BEST QUALITY?

- **CAUTION! THERE MIGHT BE MANY ANSWERS.**

OTHER (PLEASE SPECIFY)

SECTION 5: DEMOGRAPHIC INFORMATION

DE.1. Age of interviewee	24-35 (1)			36-50 (2)		
DE.2. Gender of interviewee	FEMALE(1)			MALE (2)		
DE.3.Marital status	MARRIED(1)		SINGLE(2)		ENGAGED (3)	
DE.4.Number of children	NONE(1)	1 Child (2)	2 Children (3)	3 Children (4)	4 Children (5)	5 or MORE THAN 5 (6)
DE.5.Are you household head?	YES, I AM (1)			NO, I AM NOT (2)		
	ASK DE.8 AND TERMINATE INTERVIEW			**CONTINUE.**		
DE.6 May I learn your educational background?	LITERATE	ELEMENTARY	SECONDARY	HIGH SCHOOL	UNIVERSITY AND ABOVE	
	1	2	3	4	5	
DE.7 May I learn the educational background of household head	LITERATE	ELEMENTARY	SECONDARY	HIGH SCHOOL	UNIVERSITY AND ABOVE	
	1	2	3	4	5	

1	SELF-EMPLOYED	**DE.8 PROFESSION OF THE INTERVIEWEE**	**DE.9 PROFESSION OF HOUSEHOLD HEAD**
	Qualified Self-Employed (Doctor, Pharmacist, Lawyer, Architect, Engineer, Financial Advisor)	1	1
	Owner of plant, large enterprise (100+ employees)	2	2
	Owner of plant, large enterprise (50-99 employees)	3	3
	Owner of plant, large enterprise (10-49 employees)	4	4
	Owner of plant, large enterprise (0-9 employees)	5	5
	Big wholesaler, white goods dealer, jeweler, merchant, exchange office, auto gallery (6+ employees)	6	6
	Big wholesaler, white goods dealer, jeweler, merchant, exchange office, auto gallery (0-5 employees)	7	7
	Big trader (10+ employees)	8	8
	Big trader (1-9 employees)	9	9
	Small retailer (with employees)	10	10
	Small retailer (without employee)	11	11
	Service sector (100+ employees)	12	12
	Service sector (50-99 employees)	13	13
	Service sector (10-49 employees)	14	14

	Service sector (1-9 employees)	15	15
	Graphic designer, web designer, programmer, technician	16	16
	Tailor, barber, hairdresser, artisan	17	17
	Vehicle owner, vehicle owner driver	18	18
	Big farmer, fisherman, marketer	19	19
	Small farmer, fisherman, marketer 0-5	20	20

2	WAGE EARNER		
	Qualified Professional (Doctor, Pharmacist, Lawyer, Architect, Engineer, Financial Advisor)	1	1
	Public senior manager	2	2
	Public mid-level manager	3	3
	Public Officer	4	4
	Senior manager in private sector	5	5
	Senior manager in private sector 10+	6	6
	Mid-level manager in private sector 1-9	7	7
	Subordinate manager in private sector	8	8
	Non-manager qualified employee in private sector (White-collar)	9	9
	Non-manager employee in private sector (White-collar)	10	10
	Office boy, chauffeur, security officer, secretary, administrative officers	11	11
	Military Officer	12	12
	Noncommissioned Officer	13	13
	Broker, dealer, translator	14	14
	Graphic designer, web designer, programmer, technician	15	15
	Mechanic (Auto, white goods, electrical-electronic goods)	16	16
	Tailor, barber, hairdresser, artisan	17	17
	Qualified Worker	18	18
	Unqualified Worker, Seasonal Worker, Housemaids	19	19
3	UNINSURED- FREELANCER		
	Sportsperson	1	1
	Artist	2	2
	Educator, Teacher (Private)	3	3
	Advisor, translator	4	4
	Graphic designer, web designer, programmer, technician	5	5
	Nurse, special nurse	6	6
	Babysitter	7	7
	Non-proprietor driver	8	8
	House/hand-made product seller	9	9
	Doorman, gardener	10	10

	Cleaner	11	11
	Housepainter	12	12
	Mechanic employee (Auto, white goods, electrical-electronic goods)	13	13
	Seasonal worker-Qualified	14	14
	Seasonal worker-Unqualified	15	15
	Tailor, barber, hairdresser, artisan	16	16

4	UNEMPLOYED		
	Retired / Living on pension	1	1
	Housewife	2	2
	Rentier	3	3
	Student	4	4
	Temporary Unemployed	5	5

TO THE ATTENTION OF INTERVIEWER: DO NOT ENCODE SOCIOECONOMIC STATUS		**DE.10**
SOCIO-ECONOMIC STATUS OF INTERVIEWEE	**1.B+**	1
	2. B	2
	3. C1	3
	4. C2	4

APPENDIX B

QUESTIONNAIRE (TURKISH VERSION)

ÇAMAŞIR MAKİNESİ DIŞ GÖRÜNÜM & KALİTE ALGISI ANKETİ

ANKETÖRÜN ADI-SOYADI:		**ANKET TARİHİ:**	
GÖRÜŞÜLEN KİŞİNİN ADI SOYADI:		**İL:**	
İLÇE:		**İŞ TELEFONU:**	
CEP TELEFONU:		**E-POSTA ADRESİ:**	
		SAHİP OLUNAN MARKA:	

BÖLÜM 1: İLK İZLENİMLER

S.1 BU ÜRÜNLERİ MAĞAZADA GÖRSENİZ, EN ÇOK HANGİSİ DİKKATİNİZİ ÇEKERDİ? KENDİ ARALARINDA SIRALAR MISINIZ?

- **DİKKAT! ŞIKLARI KESİNLİKLE OKUYUNUZ.**
- **BOŞ ALAN BIRAKMAYINIZ.**
- **İKİ AYRI MAKİNEYİ AYNI SIRAYA KOYMAYINIZ**

	1.ÜRÜN	2.ÜRÜN	3.ÜRÜN
ÜRÜN "T"			
ÜRÜN "D"			
ÜRÜN "M"			

S.2 BU ÜRÜNLERDEN EN ÇOK HANGİSİNİ EVİNİZDE GÖRMEK İSTERSİNİZ? KENDİ ARALARINDA SIRALAR MISINIZ?

- **DİKKAT! ŞIKLARI KESİNLİKLE OKUYUNUZ.**
- **BOŞ ALAN BIRAKMAYINIZ.**
- **İKİ AYRI MAKİNEYİ AYNI SIRAYA KOYMAYINIZ**

	1.ÜRÜN	2.ÜRÜN	3.ÜRÜN
ÜRÜN "T"			
ÜRÜN "D"			
ÜRÜN "M"			

BÖLÜM 2: ESTETİK/SEMBOLİK UNSURLARA YÖNELİK DEĞERLENDİRMELER

BU BÖLÜMDE KATILIMCILAR SORULARI ÇAMAŞIR MAKİNELERİNE TEMAS ETMEDEN, YALNIZCA MAKİNELERE BAKARAK YANITLAYACAKLARDIR.

S.3 SİZE DIŞ GÖRÜNÜMLE İLGİLİ BAZI ÖZELLİKLER OKUYACAĞIM. GÖRDÜĞÜNÜZ ÇAMAŞIR MAKİNELERİNİ, BU ÖZELLİKLERE EN ÇOK UYGUN OLMA AÇISINDAN KENDİ ARALARINDA SIRALAYABİLİR MİSİNİZ?

- **DİKKAT! HER ÖZELLİK İÇİN . EN UYGUN GÖRÜLEN MAKİNEYE 1, İKİNCİYE 2, SONUNCUYA 3 YAZINIZ.**
- **BİR ÖZELLİK İÇİN İKİ MAKİNE AYNI SIRADA OLMAMALI.**
- **BOŞ ALAN BIRAKMAYINIZ.**

ÖZELLİKLER		**I.ÜRÜN**			**II. ÜRÜN**			**III. ÜRÜN**		
		ÜRÜN T	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**
1	RENGİNİN GÜZEL OLMASI									
1A	RENGİNİ EN ÇOK BEĞENDİĞİNİZ MARKANIN DİĞERLERİNDEN RENK OLARAK FARKLI OLAN ÖZELİKLERİ NELERDİR?	**YAZINIZ**								
1B	MAKİNELERİN RENKLERİ ARASINDA BİR FARK GÖRÜYOR MUSUNUZ?	**EVET FARK VAR (1) (ANKETÖR DİKKAT! DEVAM EDİNİZ)**			**HAYIR FARK YOK (2) (ANKETÖR DİKKAT! 2.SORUYA GEÇİNİZ.**					
1C	EN ÇOK HANGİ MAKİNENİN RENGİNİ BEĞENDİNİZ?	**I.ÜRÜN**			**II. ÜRÜN**			**III. ÜRÜN**		
		ÜRÜN T	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**
ÖZELİKLER		**I.ÜRÜN**			**II. ÜRÜN**			**III. ÜRÜN**		
		ÜRÜN T	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**
2	DIŞ GÖRÜNÜMÜN GÜZEL OLMASI									
3	HAFİF OLMASI									
4	AZ YER KAPLAMASI									
5	HEYECAN VERİCİ OLMASI									
6	ÇEKİCİ OLMASI									
7	YENİLİKÇİ OLMASI									
8	SIRADAN OLMASI									
9	PAHALI OLMASI									
10	ŞIK OLMASI									

11	TEKNOLOJİK / GELECEĞİN ÜRÜNÜ OLMASI										
12	MODERN OLMASI										

BÖLÜM 3: FONKSİYONA YÖNELİK DEĞERLENDİRMELER

BU BÖLÜMDE KATILIMCILARDAN MAKİNELERİ DOKUNARAK İNCELEMELERİ, TUŞLARINA BASMALARI, KAPAĞINI AÇIP KAPATMALARI İSTENECEKTİR.

S.4 SİZE ÇAMAŞIR MAKİNELERİNİN FONKSİYONLARIYLA İLGİLİ BAZI ÖZELLİKLER OKUYACAĞIM. İNCELEDİĞİNİZ ÇAMAŞIR MAKİNELERİNİ, BU ÖZELLİKLERE EN ÇOK UYGUN OLMA AÇISINDAN KENDİ ARALARINDA SIRALAYABİLİR MİSİNİZ?

- **DİKKAT! HER ÖZELLİK İÇİN . EN UYGUN GÖRÜLEN MAKİNEYE 1, İKİNCİYE 2, SONUNCUYA 3 YAZINIZ.**
- **BİR ÖZELLİK İÇİN İKİ MAKİNE AYNI SIRADA OLMAMALI.**
- **BOŞ ALAN BIRAKMAYINIZ.**

ÖZELLİKLER		**I.ÜRÜN**			**II.ÜRÜN**			**III.ÜRÜN**		
		ÜRÜN T	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**
1	UZUN ÖMÜRLÜ									
2	PERFORMANSI YÜKSEK									
3	SAĞLAM									
4	ÖZELLİKLERİ KOLAY ANLAŞILIR OLAN									
5	KUSURSUZ GÖZÜKMESİ									
6	PARÇALARI YERLERİNE TAM OTURAN (DÜĞME/KAPAK VS.)									
7	KAPAK AÇILIP KAPANDIĞINDA VE DÜĞMELERE BASILDIĞINDA ÇIKAN SESE GÖRE KALİTELİ OLAN									
8	İÇ HACMİ / YÜKLEME KAPASİTESİ YÜKSEK									

BÖLÜM 3: KULLANIMA YÖNELİK DEĞERLENDİRMELER

S.5 SİZE ÇAMAŞIR MAKİNELERİNİN KULLANIMIYLA İLGİLİ BAZI ÖZELLİKLER OKUYACAĞIM. İNCELEDİĞİNİZ ÇAMAŞIR MAKİNELERİNİ, BU ÖZELLİKLERE EN ÇOK UYGUN OLMA AÇISINDAN KENDİ ARALARINDA SIRALAYABİLİR MİSİNİZ?

- **DİKKAT! HER ÖZELLİK İÇİN EN UYGUN GÖRÜLEN MAKİNEYE 1, İKİNCİYE 2, SONUNCUYA 3 YAZINIZ.**
- **BİR ÖZELLİK İÇİN İKİ MAKİNE AYNI SIRADA OLMAMALI.**
- **BOŞ ALAN BIRAKMAYINIZ.**

ÖZELLİKLER		**I.ÜRÜN**			**II.ÜRÜN**			**III.ÜRÜN**		
		ÜRÜN T	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**	**ÜRÜN T**	**ÜRÜN D**	**ÜRÜN M**
1	KULLANIMI KOLAY									
2	PRATİK									
3	GÖSTERGE PANELİNİN ALIŞILMIŞ OLMASI									
4	MAKİNENİN İLK KULLANIMDA KOLAY ÇALIŞTIRILABİLİR İZLENİMİ VERMESİ									
5	MAKİNENİN KULLANIMI DAHA KISA SÜREDE ÖĞRENİLEBİLİR OLMASI									
6	GÖSTERGE PANELİNİN ANLAŞILIR OLAN									

BÖLÜM 4: SON DEĞERLENDİRMELER

S.6 BU ÜRÜNLERDEN HERHANGİ BİRİNİ SATIN ALMAK İSTER MİYDİNİZ?

- **DİKKAT! ŞIKLARI KESİNLİKLE OKUYUNUZ.**
- **TEK CEVAP ALINIZ.**

EVET İSTERİM		**S.8'E GEÇİNİZ**
HAYIR, İSTEMEM		**S.7'Yİ SORUP S.10'DAN DEVAM EDİNİZ.**

S.7 BU ÜRÜNLERDEN HERHANGİ BİRİNİ ALMAK İSTEMEME NEDENLERİNİZİ ÖĞRENEBİLİR MİYİM?

- **DİKKAT! ŞIKLARI KESİNLİKLE OKUMAYINIZ.**
- **ÇOK CEVAP OLABİLİR**

KALİTELİ OLMADIKLARINI DÜŞÜNÜYORUM (7A'YA GEÇİNİZ)	
FONKSİYONLARININ YETERLİ OLMADIĞINI DÜŞÜNÜYORUM	

UZUN ÖMÜRLÜ OLMADIKLARINI DÜŞÜNÜYORUM	
KULLANIMLARININ ZOR OLDUĞUNU DÜŞÜNÜYORUM	
EBATLARI ÇOK BÜYÜK OLDUĞU İÇİN	
GÖRÜNÜMLERİNİ BEĞENMEDİM	
DİĞER (LÜTFEN YAZINIZ)	

S.7A NEDEN KALİTELİ OLMADIĞINI DÜŞÜNDÜĞÜNÜZÜ ÖĞRENEBİLİR MİYİM?
DİKKAT! SÖYLENENLERİ AYNEN YAZINIZ. **S.7'DE 2 ŞIKKINI İŞARETLEDİĞİNİZ KİŞİLERE SORUNUZ.**

S.8 BU ÜRÜNLERDEN HANGİSİNİ SATIN ALMAK İSTERSİNİZ?	
DİKKAT! ŞIKLARI KESİNLİKLE OKUYUNUZ. **TEK CEVAP ALINIZ.**	
ÜRÜN "T"	
ÜRÜN "D"	
ÜRÜN "M"	

S.9 NEDEN BU ÜRÜNÜ SATIN ALMAK İSTEDİĞİNİZİ ÖĞRENEBİLİR MİYİM?	
DİKKAT! ŞIKLARI KESİNLİKLE OKUMAYINIZ. **ÇOK CEVAP OLABİLİR.**	
KALİTELİ BİR MARKA OLDUĞUNU DÜŞÜNÜYORUM (9A'YA GEÇİNİZ)	
UZUN ÖMÜRLÜ OLDUĞUNU DÜŞÜNÜYORUM	
GÖRÜNÜMÜ SIRA DIŞI OLDUĞU İÇİN	
KULLANIMI KOLAY GÖRÜNDÜĞÜ İÇİN	
BOYUTLARINI BEĞENDİĞİM İÇİN	
DİĞER (LÜTFEN YAZINIZ)	

S.9A NEDEN KALİTELİ OLDUĞUNU DÜŞÜNDÜNÜZÜ ÖĞRENEBİLİR MİYİM?

- **DİKKAT! SÖYLENENLERİ AYNEN YAZINIZ.**
- **S.9'DA 1 ŞIKKINI İŞARETLEDİĞİNİZ KİŞİLERE SORUNUZ.**

S.10 BU ÜRÜNLERİN HANGİSİ SİZDE DAHA KALİTELİ ALGISI BIRAKTI? KENDİ ARALARINDA SIRALAR MISINIZ?

- **DİKKAT! ŞIKLARI KESİNLİKLE OKUYUNUZ.**
- **BOŞ ALAN BIRAKMAYINIZ.**
- **İKİ AYRI MAKİNEYİ AYNI SIRAYA KOYMAYINIZ**

	I.ÜRÜN	II.ÜRÜN	III.ÜRÜN
ÜRÜN "T"			
ÜRÜN "D"			
ÜRÜN "M"			

S.11 ... ÜRÜNÜNÜN EN KALİTELİ OLDUĞUNU İFADE ETTİNİZ BU ÜRÜNÜ EN KALİTELİ OLARAK İFADE ETMENİZİN NEDENLERİNİ SÖYLEYEBİLİR MİSİNİZ?

- **DİKKAT!ÇOK CEVAP OLABİLİR.**

DİĞER (LÜTFEN YAZINIZ)

BÖLÜM 5: DEMOGRAFİK DEĞERLENDİRMELER

DE.1. Görüşmecinin yaşı	24-35 (1)			36-50 (2)		
DE.2. Görüşmecinin cinsiyeti	KADIN (1)			ERKEK (2)		
DE.3.Medeni durum	EVLİ (1)		BEKAR (2)		SÖZLÜ/NİŞANLI (3)	
DE.4.Çocuk sayısı	YOK (1)	1 Tane (2)	2 Tane (3)	3 Tane (4)	4 Tane (5)	5 ve 5 TANEDEN FAZLA (6)
DE.5.Hane halkı reisi siz misiniz?	EVET BENİM (1)			HAYIR BEN DEĞİLİM (2)		
	DE.8'İ SORUP GÖRÜŞMEYİ SONLANDIRINIZ			**DEVAM EDİNİZ.**		
DE.6 Eğitim durumunuzu öğrenebilir miyim?	OKUR-YAZAR	İLKOKUL	ORTAOKUL	LİSE	ÜNİVERSİTE VE ÜSTÜ	
	1	2	3	4	5	
DE.7 Hane Halkı reisi eğitim durumu	OKUR-YAZAR	İLKOKUL	ORTAOKUL	LİSE	ÜNİVERSİTE VE ÜSTÜ	
	1	2	3	4	5	

1	KENDİSİ İÇİN ÇALIŞAN	**DE.8 GÖRÜŞMECİNİN MESLEĞİ**	**DE.9 HANE HALKI REİSİ MESLEĞİ**
	Nitelikli Serbest Meslek Sahibi (Doktor, Eczacı, Avukat, Mimar, Mühendis, Mali Müşavir)	1	1
	İmalathane, büyük işletme sahibi (100+ çalışan)	2	2
	İmalathane, büyük işletme sahibi (50-99 çalışan)	3	3
	İmalathane, büyük işletme sahibi (10-49 çalışan)	4	4
	İmalathane, büyük işletme sahibi (0-9 çalışan)	5	5
	Büyük toptancı, beyaz eşya bayii, kuyumcu, tüccar, döviz bürosu, araba galerisi (6+ çalışan)	6	6
	Büyük toptancı, beyaz eşya bayii, kuyumcu, tüccar, döviz bürosu, araba galerisi (0-5 çalışan)	7	7
	Büyük esnaf (10+ çalışan)	8	8
	Büyük esnaf (1-9 çalışan)	9	9
	Küçük esnaf (elemanlı)	10	10

	Küçük esnaf (elemansız)	11	11
	Hizmet sektörü (100+ çalışan)	12	12
	Hizmet sektörü (50-99 çalışan)	13	13
	Hizmet sektörü (10-49 çalışan)	14	14
	Hizmet sektörü (1-9 çalışan)	15	15
	Grafiker, web dizaynır, programcı, teknisyen	16	16
	Terzi, berber, kuaför, zanaatkar	17	17
	Araç sahibi, araç sahibi şoför	18	18
	Büyük çiftçi, balıkçı, pazarcı	19	19
	Küçük çiftçi, balıkçı, pazarcı 0-5	20	20

2	ÜCRETLİ ÇALIŞAN		
	Nitelikli Meslek Sahibi (Doktor, Eczacı, Avukat, Mimar, Mühendis, Mali Müşavir)	1	1
	Kamuda üst düzey yönetici	2	2
	Kamuda orta düzey yönetici	3	3
	Devlet Memuru	4	4
	Özel sektörde üst düzey yönetici	5	5
	Özel sektörde üst düzey yönetici 10+	6	6
	Özel sektörde orta düzey yönetici 1-9	7	7
	Özel sektörde alt düzey yönetici	8	8
	Özel sektörde yönetici olmayan nitelikli çalışan (Masabaşı)	9	9
	Özel sektörde yönetici olmayan çalışan (Masabaşı)	10	10
	Ofisboy, özel şoför, güvenlik görevlisi, sekreter, idari işler görevlileri	11	11
	Subay	12	12
	Astsubay	13	13
	Borsacı, dealer, tercüman	14	14
	Grafiker, web dizaynır, programcı, teknisyen	15	15
	Tamirci (Oto, beyaz eşya, elektrikli-elektronik eşya)	16	16
	Terzi, berber, kuaför, zanaatkar	17	17
	Vasıflı (Kalifiye) İşçi	18	18
	Vasıfsız İşçi, Dönemsel İşçi, Ev Hizmetlileri	19	19
3	SİGORTASIZ- BAĞIMSIZ ÇALIŞAN		
	Sporcu	1	1
	Sanatçı	2	2
	Eğitmen, Öğretmen (Özel)	3	3
	Danışman, tercüman	4	4
	Grafiker, web dizaynır, programcı, teknisyen	5	5
	Hasta bakıcı, özel hemşire	6	6
	Çocuk bakıcısı	7	7

	Araç sahibi olmayan şoför	8	8
	El-ev yapımı ürünler satan	9	9
	Kapıcı, bahçıvan	10	10
	Temizlik elemanı	11	11
	Boyacı	12	12
	Tamirci çalışanı (Oto, beyaz eşya, elektrikli-elektronik eşya)	13	13
	Dönemsel işçi Vasıflı	14	14
	Dönemsel işçi Vasıfsız	15	15
	Terzi, berber, kuaför, zanaatkar	16	16

4	ÇALIŞMAYAN		
	Emekli / Emekli Maaşı ile geçinen	1	1
	Ev Hanımı	2	2
	Rant Geliri ile geçinen	3	3
	Öğrenci	4	4
	Geçici İşsiz	5	5

ANKETÖR DİKKAT: SOSYO EKONOMİK YAPIYI KODLAMAYINIZ		**DE.10**
GÖRÜŞMECİNİN **SES** DURUMU	**1.B+**	1
	2. B	2
	3. C1	3
	4. C2	4

APPENDIX C

PARTICIPANTS' COMMENTS TO THE OPEN-ENDED QUESTIONS

Table C.1 Participant's comments to the quality of the products

Comments on Quality	GENERAL		PRODUCT D		PRODUCT M		PRODUCT T	
	NO	%	NO	%	NO	%	NO	%
Comments Related to Aesthetic Information								
Visual appeal	29	29.0	12	32.4	6	20.0	11	33.3
Pure and clean appearance	9	9.0	-	-	3	10.0	6	18.2
Having a distinctive appearance	9	9.0	-	-	9	30.0	-	-
Being attractive	7	7.0	1	2.7	3	10.0	3	9.1
The color of the products	7	7.0	2	5.4	1	3.3	4	12.1
The aesthetic appearance of the buttons	4	4.0	3	8.1	-	-	1	3.0
The aesthetic appearance of the door	4	4.0	1	2.7	3	10.0	-	-
Grey plastic part in the control panel	3	3.0	3	8.1	-	-	-	-
Occupying small area	3	3.0	2	5.4	-	-	1	3.0
The aesthetic appearance of the control panel	3	3.0	3	8.1	-	-	-	-
Having glossy paint	3	3.0	2	5.4	-	-	1	3.0
Being completely white	2	2.0	-	-	-	-	2	6.1
Having flat backside	2	2.0	1	2.7	1	3.3	-	-
Newly designed control panel	1	1.0	1	2.7	-	-	-	-
Having two colors	1	1.0	1	2.7	-	-	-	-
Giving the feeling of metal front door	1	1.0	-	-	1	3.3	-	-
The harmony of grey/white parts	1	1.0	1	2.7	-	-	-	-
Comments Related to Symbolic Information								
Impression of technological product	12	12.0	4	10.8	7	23.3	1	3.0
Being ordinary	10	10,0	3	8.1	-	-	7,0	21.2
Being innovative	10	10,0	2	5.4	9	26.6	-	-
Being elegant	3	3.0	1	2.7	-	-	2	6.1
Being modern	3	3.0	1	2.7	2	6.7	-	-
The impression of having touch control buttons	2	1.0	1	2.7	1	3.3	-	-

Table C.1 (continued)

Resemblance to industrial products	1	1.0	-	-	1	3.3	-	-
Being expensive	1	1.0	-	-	1	3.3	-	-
Comments Related to Functional Information								
The number of washing programs	19	19.0	14	37.8	-	-	5	15.2
Higher interior volume and loading capacity	10	10.0	5	13.5	1	3.3	4	12.1
Impression of the robustness	7	7.0	2	5.4	2	6.7	3	9.1
Being more sensitive to ecology	4	4.0	4	10.8	-	-	-	-
Impression of having more durable door structure	3	3.0	3	8.1	-	-	-	-
Impression of having more durable plastic material	3	3.0	3	8.1	-	-	-	-
Having more buttons	3	3.0	2	5.4	-	-	1	3.0
Having more durable buttons / knobs etc.	3	3.0	1	2.7	-	-	2	6.1
The sound heard when opening/closing the door	2	2.0	1	2.7	1	3.3	-	-
The sound heard when pressing the buttons etc.	2	2.0	2	5.4	-	-	-	-
Having more robust front door	2	2.0	-	-	2	6.7	-	-
Having more robust interior	2	2.0	1	2.7	1	3.3	-	-
Having more durable material in interior	2	2.0	2	5.4	-	-	-	-
Having a tumble which does not swing	1	1.0	1	2.7	-	-	-	-
Having a better paint application	1	1.0	1	2.7	-	-	-	-
Having newer functions	1	1.0	-	-	-	-	1	3.0
Having more durable control panel	1	1.0	-	-	-	-	1	3.0
Detailed controls for the cloth types	1	1.0	1	2.7	-	-	-	-
Comments Related to Functional Information								
Being User Friendly	18	18.0	4	10.8	4	13.3	10	30.3
Easy-to-operate door	11	11.0	3	8.1	1	3.3	7	21.2
Detergent container located inside the door	9	9.0	-	-	9	30.0	-	-
Simple and apparent control panel	7	7.0	-	-	5	16.7	2	6.1
Being handy	7	7.0	1	2.7	2	6.7	4	12.1
Having clear and apparent buttons	7	7.0	3	8.1	1	3.3	3	9.1
Being familiar with the existing machine	5	5.0	-	-	-	-	5	15.2
Having more handy buttons, knobs, etc.	3	3.0	-	-	1	3.3	2	6.1
Easy-to-load detergent container	3	3	2	5.4	1	3.3	-	-
Having digital display in the control panel	3	3.0	3	8.1	-	-	-	-
Having a descriptive control panel	2	2.0	2	5.4	-	-	-	-
Having a large detergent container	2	2.0	1	2.7	-	-	1	3.0

Table C.1 (continued)

Having easy-pushing buttons	1	1.0	1	2.7	-	-	-	-
Not having a glass door	1	1.0	-	-	1	3.3	-	-
Having easy-rotating knob	1	1.0	-	-	-	-	1	3.0
Having user-friendly knob	1	1.0	-	-	-	-	1	3.0
Having follower LEDs describing the cycle process	1	1.0	1	2.7	-	-	-	-
Not having digital programme settings	1	1.0	-	-	-	-	1	3.0
Having easy-rotating tumble	1	1.0	-	-	-	-	1	3.0
User-friendly water disposal lid in the front	1	1.0	-	-	-	-	1	3.0
Having user-friendly door handle	1	1.0	-	-	-	-	1	3.0
Total Number of Comments	**284**		**109**		**79**		**96**	
Number of Respondents	**100**		**37**		**30**		**33**	

Table C.2 Participant's comments on the color of the products

Comments on Color	GENERAL		PRODUCT D		PRODUCT M		PRODUCT T	
	NO	%	NO	%	NO	%	NO	%
Having a single color	27	27.0	-	-	-	-	27	62.8
Glossy painting	26	26.0	5	12.8	2	11.1	19	44.2
The color of th grey plastic part in the control panel	17	17.0	17	43.6	-	-	-	-
Harmony in the grey/white parts	12	12.0	10	25.6	2	11.1	-	-
The color value of the white	10	10.0	8	20.5	2	11.1	-	-
The color of the grey door	9	9.0	-	-	9	50.0	-	-
Matte painting	6	6.0	6	15.4	-	-	-	-
Having pure white color	4	4.0	-	-	-	-	4	9.3
Color which is look clean	4	4.0	-	-	-	-	4	9.3
Having a color congruent with the the environment	3	3.0	2	5.1	1	5.6	-	-
Having plain color	3	3.0	-	-	-	-	3	7.0
Color which is not old	3	3.0	-	-	1	5.6	2	4.7
Closer to grey tones	3	3.0	1	2.6	2	11.1	-	-
Having attractive colors in the control panel	2	2.0	2	5.1	-	-	-	-
Belief that the color will not turn yellow in high temperatures.	1	1.0	1	2.6	-	-	-	-
Having conventional colors	1	1.0	1	2.6	-	-	-	-
Belief that it would be cleaned easily	1	1.0	-	-	-	-	1	2.3

Table C.2 (continued)

Belief that grey part conceals the dirt	1	1.0	1	2.6	-	-	-	-
Having lighter tones	1	1.0	-	-	-	-	1	2.3
Red line around the knob	1	1.0	-	-	-	-	1	2.3
Having two colors	1	1.0	-	-	1	5.6	-	-
The impression of elegance by means of the color	1	1.0	1	2.6	-	-	-	-
Having bright colors	1	1.0	-	-	-	-	1	2.3
The impression of metallic paint	1	1.0	-	-	1	5.6	-	-
Having refershing colors	1	1.0	-	-	-	-	1	2.3
The impression of having pure white since there are less controls in the panel	1	1.0	-	-	1	5.6	-	-
Having more black texts	1	1.0	-	-	-	-	1	2.3
The color of the buttons, knob etc.	1	1.0	-	-	1	5.6	-	-
Total Number of Comments	**143**		**55**		**23**		**65**	
Number of Respondents	**100**		**39**		**18**		**43**	

Table C.3 The Reasons of the Participants for their Purchase Decisions

The Reasons for Purchase Decision	GENERAL		PRODUCT D		PRODUCT M		PRODUCT T	
	NO	%	NO	%	NO	%	NO	%
The impression of being user-friendly	42	42.9	15	39.5	13	46.4	14	43.8
Having clear control panel	32	32.7	14	36.8	3	10.7	15	46.9
Visual appeal	21	21.4	10	26.3	4	14.3	7	21.9
Having extraordinary appearance	21	21.4	-	-	17	60.7	-	-
Liking the dimensions	18	18.4	9	23.7	6	21.4	3	9.4
Having more functions	17	17.3	13	34.2	-	-	4	12.5
Having larger loading capacity	11	11.2	2	5.3	2	7.1	7	21.9
Easy-to-load detergent container in the front door	9	9.2	-	-	9	32.1	-	-
Being ordinary	8	8.2	5	13.2	-	-	3	9.4
Having larger interior	7	7.1	2	5.3	2	7.1	3	9.4
Clear definitions of the functions	7	7.1	3	7.9	-	-	4	12.5
Having easy-to-open front door	6	6.1	2	5.3	2	7.1	2	6.3
Being spectacular	6	6.1	2	5.3	3	10.7	1	3.1
Having a distinctive appearance	6	6.1	-	-	6	21.4	-	-
Aesthetically pleasing appearance	6	6.1	2	5.3	2	7.1	2	6.3

Table C.3 (continued)

Liking the color	6	6.1	3	7.9	-	-	3	9.4
The impression of being more durable	6	6.1	1	2.6	3	10.7	2	6.3
The harmony of grey/white parts	5	5.1	5	13.2	-	-	-	-
Favoring the functions	5	5.1	3	7.9	-	-	2	6.3
Not having a glass door	5	5.1	-	-	5	17.9	-	-
Being technological	5	5.1	2	5.3	3	10.7	-	-
The aesthetic appearance of the control panel	5	5.1	5	13.2	-	-	-	-
Having easy-pushing buttons	5	5.1	1	2.6	-	-	4	12.5
Being more sensitive to ecology	5	5.1	5	13.2	-	-	-	-
Pure and clean appearance	5	5.1	1	2.6	3	10.7	1	3.1
Being handy	5	5.1	1	2.6	3	10.7	1	3.1
Having user-friendly knob	4	4.1	3	7.9	1	3.6		
Having glossy color	4	4.1	1	2.6	-	-	3	9.4
The impression of being robust	4	4.1	1	2.6	1	3.6	2	6.3
Nice door design	4	4.1	-	-	2	7.1	2	6.3
Aesthetic appearance of the door	4	4.1	3	7.9	1	3.6	-	-
The impression of being new	4	4.1	2	5.3	2	7.1	-	-
Hidden detergent container	4	4.1	-	-	4	14.3	-	-
Having less buttons	4	4.1	-	-	4	14.3	-	-
Beign modern	4	4.1	-	-	2	7.1	2	6.3
Having glass door	4	4.1	1	2.6	-	-	2	6.3
The impression of high quality	4	4.1	1	2.6	1	3.6	2	6.3
Being easy-to-use	3	3.1	-	-	1	3.6	2	6.3
Having nice button design	3	3.1	2	5.3	-	-	1	3.1
The impression of being robust when the door is opened/closed	3	3.1	1	2.6	1	3.6	1	3.1
Being completely white	3	3.1	-	-	-	-	3	9.4
Child lock function	2	2.0	2	5.3	-	-	-	-
Being child-proof due to less buttons	2	2.0	-	-	2	7.1	-	-
Wider detergent container	2	2.0	-	-	-	-	2	6.3
Easy-to-use detergent container	2	2.0	-	-	1	3.6	1	3.1
Being innovative	2	2.0	1	2.6	1	3.6	-	-
Having two colors	2	2.0	2	5.3	-	-	-	-
Having follower LEDs describing the cycle process	2	2.0	2	5.3	-	-	-	-
The impression of performing better	2	2.0	1	2.6	1	3.6	-	-
Having nice functions	2	2.0	1	2.6	-	-	1	3.1

Table C.3 (continued)

Having more durable material in interior	1	1.0	1	2.6	-	-	-	-
The door which is located deeper	1	1.0	1	2.6	-	-	-	-
Having robust buttons	1	1.0	1	2.6	-	-	-	-
The aesthetic appearance of the control panel	1	1.0	1	2.6	-	-	-	-
Not having digital programme settings	1	1.0	-	-	1	3.6	-	-
The sound heard when opening/closing the door	1	1.0	1	2.6	-	-	-	-
Having a larger volume	1	1.0	-	-	-	-	1	3.1
Easy-to-clean detergent container	1	1.0	-	-	-	-	1	3.1
Ease-to-remove detergent container	1	1.0	-	-	-	-	1	3.1
Having larger text on the control panel	1	1.0	-	-	-	-	1	3.1
Resembling the existing washing machine	1	1.0	-	-	-	-	1	3.1
The tone of the white	1	1.0	1	2.6	-	-	-	-
User-friendly water disposal lid in the front	1	1.0	-	-	-	-	1	3.1
Beign futuristic	1	1.0	1	2.6	-	-	-	-
Having an appearance which resembles local washing machines	1	1.0	1	2.6	-	-	-	-
The design of the door handle	1	1.0	1	2.6	-	-	-	-
T The impression of having touch control buttons	1	1.0	-	-	-	-	1	3.1
Having easy-rotating knob	1	1.0	1	2.6	-	-	-	-
Having easier functions	1	1.0	-	-	1	3.6	-	-
Being ideal for a small family	1	1.0	-	-	1	3.6	-	-
Having a tumble which does not reveal any sound when rotating	1	1.0	-	-	1	3.6	-	-
Total Number of Comments	**369**		**140**		**115**		**109**	
Number of Respondents	**98**		**38**		**28**		**32**	